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● The campaign for the control of tuberculosis, as exemplified by the well-known Christmas seal, owes much of its success to the veterinary profession. Not only did veterinarians give the original impetus to organized world-wide tuberculosis control, but they have pioneered many advances in the scientific attack on the disease, including the eradication of bovine tuberculosis.

In Paris in the year 1888, at the suggestion of a veterinarian, Butel, the first International Congress on Tuberculosis, attended alike by physicians and veterinarians, was held. The fact that another veterinarian, Chauveau, was chosen to preside at that meeting further indicates the importance of veterinarians to this campaign.

The practical contributions which veterinarians have made to tuberculosis control are indicated by this statement, made in 1940 by J. Arthur Myers, a physician: "In human tuberculosis, many problems which are today considered controversial have already been solved by the veterinary profession."

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of the
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VOL. CIII DECEMBER 1943 NO. 801

The Army Veterinary Service

Brigadier General R. A. KELSER, United States Army
Washington, D. C.

As the American Veterinary Medical Association meets this year for its streamlined War Conference in place of the usual convention held under normal conditions, we have many reasons to be thankful for the excellent progress made and successes attained in prosecuting this second World War. Let me hasten to say, however, that our progress and gains sholud not lull us to a let-up in our efforts to push forward with everything we have to assure the complete victory which we are determined to attain.

The past year has seen great strides and developments within our armed forces. Our army has grown rapidly and equipment and supplies have been made available in huge quantities so that today we have the largest, best equipped, and best trained military machine in our history, thoroughly capable of doing the job expected of it.

In the excellent progress made in the building of the Army generally, the Veterinary Corps has kept pace with developments and requirements. While there has been only a moderate increase in the horse and mule complement of the Army, the animal service side of the veterinary officers' functions has been appreciably increased through the acquisition of relatively large numbers of war dogs for military service. The greatest increase in veterinary requirements, however, has been incident to our food inspection service. In this, veterinary requirements increase in direct proportion to the general increase in the strength of the Army.

Animal Service

All of us recognize the tremendous part that mechanization has played in the present conflict. We, in this country, have the skill and capacity to produce and utilize mechanized equipment in a way that will outstrip any other nation and the results of this superiority are now being well demonstrated. Along with all of our mechanization, we still maintain and, under certain difficult conditions, can utilize to good advantage a small complement of horses and mules. I am sure that most of you have seen in the newsreels and pictorial reports evidence that, in several places in the world where we have troops and where the terrain is especially difficult, a few horses and mules serve a useful purpose. Among the slides which I will show you later are several depicting the utilization of horses and mules. I believe you will find these interesting.

While the number of horses and mules in the Army is not large, for those we do have the Veterinary Corps has provided facilities for rendering the highest type of service, when sick or injured. Our personnel, facilities, and equipment are such

Presented, with lantern slides, at the eightieth annual (War Conference) meeting of the American Veterinary Medical Association, St. Louis, Aug. 25-26, 1943.

Director, Veterinary Division, Surgeon General's Office, Army Service Forces.

as to insure that when these faithful beasts are sick or injured they will receive the very best of modern surgical and medical treatment, hospitalization, and care. Further, special attention is given to veterinary preventive measures in order to afford our military animals every possible protection against serious infectious diseases to which they are ordinarily susceptible. Glanders, which was of common occurrence among army animals in World War I, is essentially nonexistent among our animals in the United States, and at places overseas where we have animals, preventive and control measures by our veterinary officers have made it of negligible importance.

The importance of equine encephalomyelitis as the most serious of all diseases of horses and mules in the United States is well known to all American veterinarians. It is of special concern to those of us charged with the care of the health of Army animals because, being mosquito-borne, animals in the field ordinarily are very vulnerable to exposure. All Army horses and mules are effectively immunized against encephalomyelitis by a highly potent vaccine produced by the Laboratory Division of the Army Veterinary School, Army Medical Center, Washington, D. C. This general immunization procedure was initiated in 1939 and has been repeated annually since then with strikingly excellent results. As a matter of fact, we have no record of any Army horse or mule developing the disease after having been properly immunized with this vaccine. This, in spite of the fact that army animals have been utilized without restrictions on field maneuvers in areas where the disease has been prevalent among civilian animals.

Another preventive medicine practice has been the immunization of all army horses and mules against tetanus through the administration of tetanus toxoid. This was accomplished by administering two 10 cc. doses of toxoid (plain filtrate type) with an interval of six weeks between doses. To maintain the immunity, a booster dose of 5 cc. of toxoid at two-year intervals is prescribed.

At the present time. we have thousands of war dogs and the number is steadily increasing. In order to properly care for these animals when sick or injured, the Veterinary Corps has made provision for adequate hospital facilities and all necessary special drugs, biological products, supplies, and equipment essential to a highly efficient service. The slides I will later show you include a number dealing with war dogs.

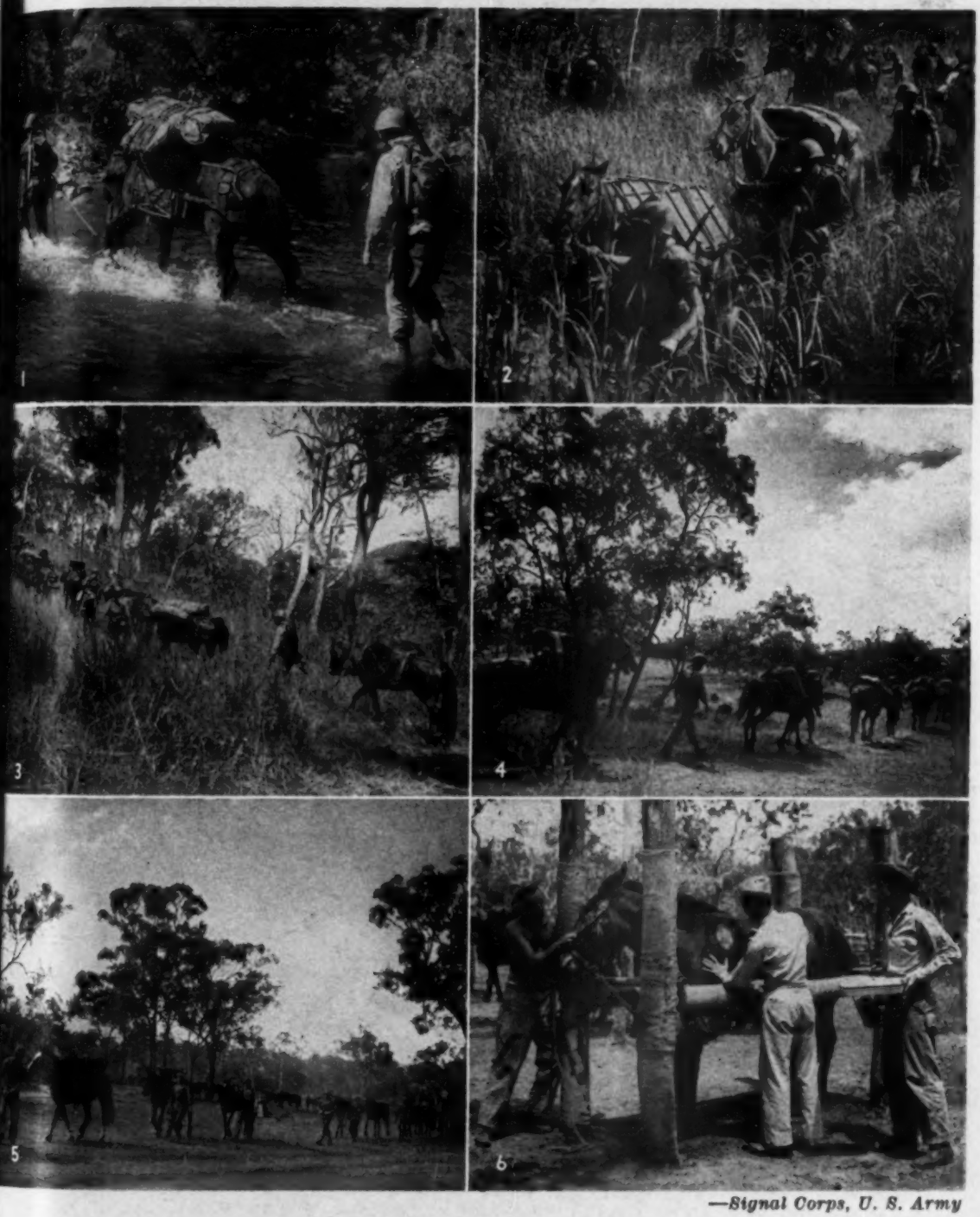
In connection with our animal service, important research investigations are conducted at the Army Veterinary School and our Research Laboratory at the Remount Depot, Front Royal, Virginia. These investigations have been on a high plane and the results therefrom have already contributed greatly to scientific knowledge.

VETERINARY FOOD INSPECTION SERVICE

Army veterinary meat-and-dairy-hygiene service has as its primary purpose the protection of the health of troops by determining that meats, meat-food and dairy products purchased and issued to troops are safe, wholesome, and suitable for food purposes. Further, at the time of purchase or offer for delivery to the Army, the Veterinary Corps is charged with the inspection of these food items to determine that they meet Army specification and contract requirements as to grade and quality. Subsequent inspections for soundness and sanitary conditions are conducted during storage, when moved, and when issued for use of troops.

As is well known, we have troops in many places throughout the world. In a number of these places, climatic and other conditions under which perishable food items must be received, stored, moved and handled, are exceedingly severe. It is most important, in order to safeguard the health of our troops and insure their efficiency, that every safeguard possible be placed around their food supply. It is here that the Veterinary Corps is playing an especially important rôle in the war effort. The classes of food most vulnerable to contamination and spoilage, with resultant serious outbreaks of disease in troops, are meats, meat-food and dairy products—items procured and handled under veterinary inspection. The Veterinary Corps safeguards these products from the time of preparation and purchase up to the issue to troops. Millions of pounds of meats, meat-food and dairy products are inspected daily by the Corps and it is noteworthy that although

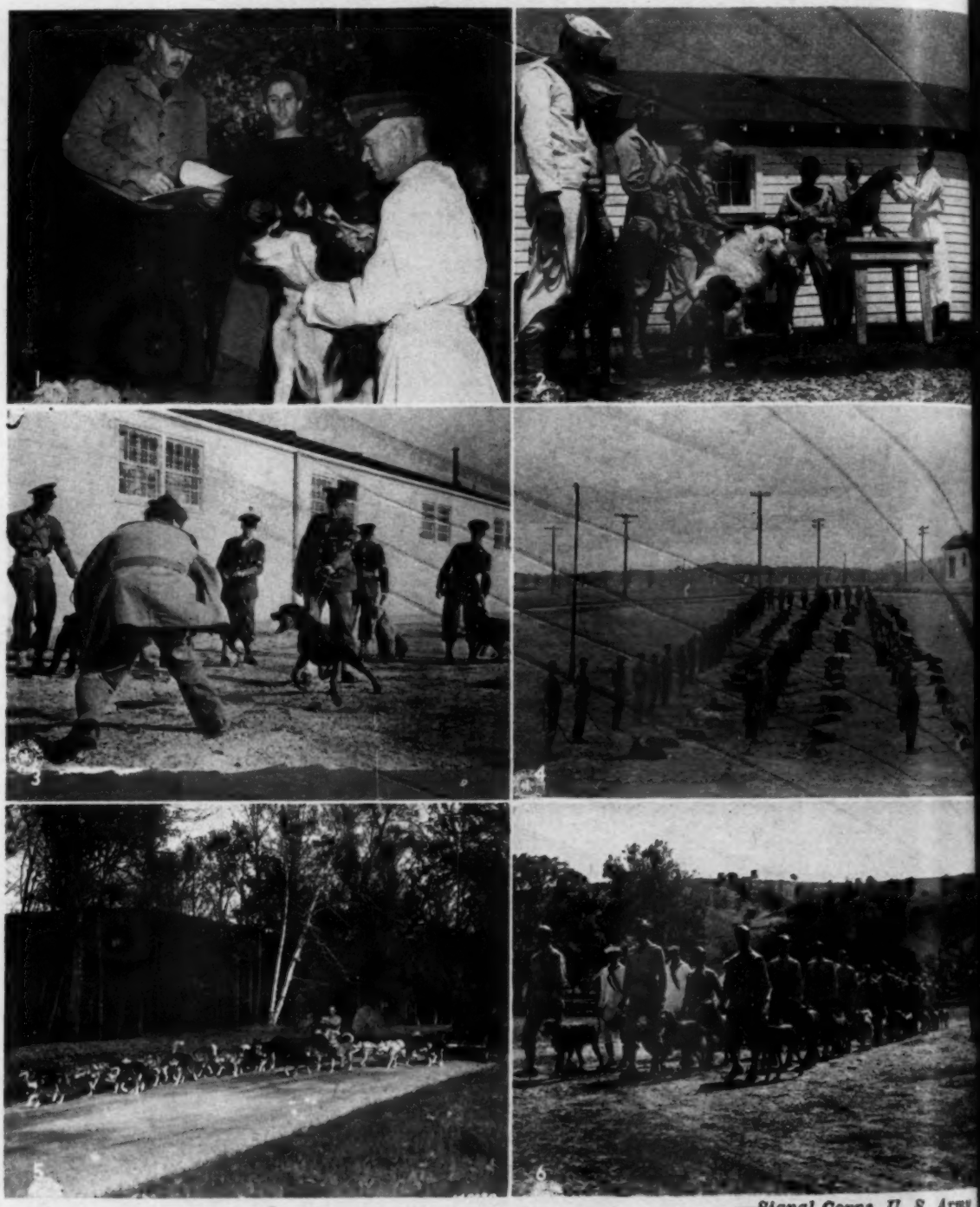
Horses and Mules, Army of the United States



—Signal Corps, U. S. Army

Fig. 1-5—Army horses somewhere in the Pacific Theater.
Fig. 6—An army mule receiving treatment by veterinarians in the Pacific Theater.

War Dogs, Army of the United States



—*Signal Corps, U. S. Army*

Fig. 1—Tattooing identification number.
Fig. 2—Examination of war dog recruits arriving at reception center.
Fig. 3—Attack training.
Fig. 4—Group of war dogs in training.
Fig. 5—Sled dog training. In the absence of snow, wheeled vehicle is used in place of sled.
Fig. 6—War dogs going to the field for training.

procurement, since the beginning of war, has run into billions of pounds and shipments have been made all over the world, no serious outbreaks of disease have resulted from the food supply.

In a number of places where the supply problem is difficult, local sources of food supply are utilized to the extent that conditions and circumstances warrant. In such places, the Army Veterinary Corps provides complete inspection service, including ante- and postmortem inspection at abattoirs.

In several foreign countries where we have troops, the Veterinary Corps has done much to improve and develop local meat and milk supplies, assist in the control of animal diseases, and in the improvement of sanitary conditions. This has operated to the advantage of the particular locality and its people by improving conditions pertaining to the production and handling of meats, meat-food and dairy products and at the same time has given the Army a safe, wholesome, local supply of these foodstuffs. Further, the help thus extended to the people of these localities has served to promote excellent relations between them and our military forces.

The slides which I will show you will

Food Inspection, Army of the United States

—Signal Corps, U. S. Army

Fig. 1—Veterinary officers inspecting carcass beef.
Fig. 2—Veterinary officer supervising boning of beef for Army.
Fig. 3—Veterinary officer selecting green "bellies" for production of Army bacon.
Fig. 4—Veterinary officer inspecting fresh hams for quality and condition.

—*Signal Corps, U. S. Army*

Fig. 5—Corner of food chemistry laboratory, Army Veterinary School.

—*Signal Corps, U. S. Army*

Fig. 6—Enlisted technicians' class, Army Veterinary School, receiving instruction in egg candling.

give you a few glimpses of what the Veterinary Corps is doing in its inspection of meat, meat-food and dairy products.

VETERINARY PERSONNEL

Special training of personnel, both commissioned and enlisted, is particularly important and has been greatly accelerated since the beginning of the present emergency. Commissioned personnel is given intensive courses at the Army Medical Field Service School, Carlisle Barracks, Pennsylvania, at the Army Veterinary School, Washington, D. C., and at Chicago. At the latter place, we provide an excellent course in meat and dairy hygiene.

Enlisted men are given special training at the Army Veterinary School in Washington, the Enlisted Technicians' School at William Beaumont General Hospital, El Paso, Texas, and at the Medical Department Replacement Training Center, Camp Grant, Illinois.

Before concluding, I want to say a few words about veterinary commissioned personnel. When we entered the present emergency, we were fortunate in having a Veterinary Corps Reserve of such size as to adequately meet immediate expansion requirements and those for the first year of the war. Thus, up until January of 1943, the only new routine commissions granted were to veterinarians whose draft boards failed to give them deferred classification under the Selective Service Act. About January 1 of this year, the size of the Army had reached a point where it became necessary to commission additional veterinarians to meet requirements. In making these new appointments, equal consideration was given physically qualified applicants in civil life who met prescribed requirements and recent graduates who, as students, held commissions in the Medical Administrative Corps. With one or two exceptions, all qualified veterinarians who happened to be inducted into the Army under the Selective Service Act have been commissioned.

As most of you will recall, the Secretary of War on April 17, 1942, authorized the commissioning of veterinary students regularly enrolled in accredited colleges of veterinary medicine as second lieutenants, Medical Administrative Corps, in order to insure opportunity to complete their courses and thereby maintain an adequate flow of veteriary graduates to meet military requirements. Under this authority, it was provided that if veterinary students were not selected for conversion commissions in the Veterinary Corps, Army of the United States, within three months subsequent to graduation, their Medical Administrative Corps commissions would be terminated. It was indicated that all graduates would not be selected for appointment in the Veterinary Corps, Army of the United States, the number selected depending upon requirements at the particular time.

Following the inauguration of the Army Specialized Training Program, the practice of commissioning medical, dental, and veterinary students in the Medical Administrative Corps was discontinued. Under

the Army Specialized Training Program, all physically qualified veterinary students, regularly enrolled in accredited colleges of veterinary medicine, and who were in good standing, were given the opportunity to resign their Medical Administrative Corps commissions and enlist in the Enlisted Reserve Corps for the continuation of their courses. In addition—and before the precise requirements of the Army had been determined — provision was made whereby students in preveterinary courses could be sponsored under the ASTP. As it soon became evident that the number of trainees under this arrangement would be far in excess of Army requirements, instructions were issued discontinuing enrollment of individuals for preveterinary training under the ASTP. Thus, as it now stands, veterinary training under the ASTP is limited to those physically qualified students already in accredited colleges of veterinary medicine and in good standing at the time the ASTP was put into operation, and those preveterinary students who had previously enlisted in the Enlisted Reserve Corps for preveterinary training and who had been definitely selected for admission into an accredited college of veterinary medicine. It is anticipated that the number of veterinary students sponsored under the ASTP will be more than adequate to meet military requirements for veterinary graduates for the remainder of the war.

When it appeared evident that the number of veterinary graduates under the ASTP would be more than sufficient to meet current requirements for veterinary commissioned personnel, it was indicated that upon graduation all enlisted veterinary enrollees would be discharged from their enlisted status and commissioned in the Veterinary Corps, Army of the United States, and such number as required immediately placed on active duty, the remainder continuing in an inactive status until required. Very recently the War Department has modified this plan and it is now provided that upon graduation in veterinary medicine, students sponsored under the ASTP will be commissioned in such numbers as may be immediately required, all others to be discharged from their enlisted status, given certificates of capacity, and commissioned in the Veterinary Corps and placed on active duty only as required.

CONCLUSION

When the history of World War II is written, I am sure that the veterinary profession will be able to look back with pride and satisfaction on the part it will have played in the fight to preserve our freedom, rights, and principles of democracy which characterize our nation and people.

Federal Aid in Controlling Animal Diseases

Whatever may be one's business, profession, or political belief, federal aid in eradicating diseases of animals is a matter of personal concern, not only on the general principle that disease is no respecter of state boundaries but because we, as veterinarians, are thankful to the federal service for always having honored veterinary education in recruiting personnel for its fighting force; in other words, for having been instrumental in forming a scientific veterinary service for the American people.

Without discounting the principles of states' rights and rugged individualism in controlling diseases of farm animals, one has to admit that federal aid has been the bulwark of both. Giving a free hand to private enterprise in that work could have led only to chaos. In the free, unhindered traffic in livestock, germs do not halt at state lines, nor yield to quackish practices. Before the coming of federal aid, farm-animal diseases could fly about as free as the wind, *vide* contagious pleuropneumonia, Texas fever, hog cholera, foot-and-mouth disease, tuberculosis, scabies, *et al.*

The chance to test the virtues of states' rights, rugged individualism, private enterprise, or what have you, has arrived. The let-down in fighting brucellosis (= Bang's disease) leaves a wide-open testing ground for the decentralized system advocated.

Let's go, and let's see; germs do not mark time while we're debating. Brucellosis of farm animals is a serious disease. Will the states eradicate it without federal aid?

Germany will not win because she can't stop the destruction of her war industries caused by the weapons your War Bonds are furnishing.

Poultry Inspection in the City of Detroit

ROBERT F. WILLSON, D.V.M.

Detroit, Michigan

THE PURPOSE of any food inspection service is to ensure the consumer receiving (1) a disease-free food, (2) a product which is incapable of transmitting disease to the consumer, and (3) one which is processed under the best sanitary conditions possible.

The federal and local governments have recognized these aims in the establishment of veterinary, meat-inspection services. The Detroit Health Department has long recognized the value of the veterinary inspector in health work. As Detroit's population continued to increase, the influx of foodstuffs, particularly meat, increased. The meat inspection program flourished, and the staff of veterinarians was increased from time to time to provide for the increased amount of animals slaughtered, locally. Today, Detroit employs 28 veterinary, meat inspectors. The system is comparable to any local meat-inspection system in the United States. The city meat ordinance provides that "the rules of the Bureau of Animal Industry shall be applicable in all cases."

There was not, however, any specific local ordinance providing for the ante- and post-mortem inspection of poultry, nor any regulations specified in regard to the construction of poultry slaughterhouses.

In 1936, the Detroit Health Department, recognizing this fault, sponsored an ordinance requiring the inspection of all poultry entering the city. The ordinance was passed by the city council, and went into force immediately. Previously, the only inspected poultry available to the people of Detroit was that inspected and passed by the Bureau of Animal Economics.

The poultry ordinance, known as Ordinance No. 330-C, provides for the licensing and regulation of wholesale or retail poultry dealers, and for the inspection of all poultry offered for sale. The various types of businesses are typed and licensed as follows:

1) Wholesale Poultry Dealer	$50.00
2) Retail Poultry Dealer over 50 Fowl	50.00
3) Retail Poultry Dealer under 50 Fowl	10.00
4) Retail Live Poultry Dealer	10.00
5) Custom Slaughter House	25.00

The wholesale poultry dealer may handle any amount of live or dressed poultry, and he may slaughter any number of birds. The retail poultry dealer who pays a fifty-dollar license fee may kill any number of fowl, but the retail dealer who only pays a ten-dollar fee may kill up to 50 only, in any one week. The custom slaughterhouse for poultry is used for religious (kosher) slaughter, exclusively.

The ordinance states that "it shall be unlawful for any poultry dealer to deal in, offer for sale, sell or purchase, or deliver in the City of Detroit, live or dressed poultry, unless such poultry shall have been inspected by the Board of Health at central designated points to be determined by said Board of Health, and a certificate issued thereon."

The ordinance continues by stating that ". . . approved poultry shall consist of poultry which is healthy, plump, and generally perfect, or poultry with some defect or defects which do not unfit it for human consumption. Culls shall consist of poultry with tumors, downers, tuberculosis, swollen heads or eyes, gapes, or other diseases or defects which render such poultry unfit for human consumption."

Regarding the fees for inspection of poultry, the ordinance states that, "A fee of two cents per coop for the inspection of live poultry, and five cents per hundred pounds of dressed poultry shall be charged by the City of Detroit."

The ordinance also states that no poultry shall be brought into Detroit from a slaughterhause which does not conform to the regulations and sanitary requirements as set down by the Detroit Department of Health.

The reader can readily see that, while the ordinance makes no specific mention of any one disease, except tuberculosis, it gives us a wide range where it states that "approved poultry shall consist of poultry which is healthy, plump, and generally perfect."

The regulations covering poultry slaughterhouses are too long to quote in their entirety. Briefly, before a prospective

poultry dealer can start in the poultry business in Detroit, he must first apply to the Buildings and Safety Engineering Department for an occupancy permit. He must then apply to the Health Department for a permit to obtain his license from the Police Department. Duplicate blueprints must accompany his application for a permit. No permit can be given unless his intended place of business complies with the following regulations:

1) The floors must be of cement or concrete or other watertight, or nonabsorbent material. The floors must be properly drained and graded.

2) The ceilings and walls must be smooth, free from cracks, and easily cleaned. The ceilings must be at least 10 feet high.

3) Ventilation must be adequate to the external air. Ventilation shall be provided in every room in which poultry is stored or killed.

4) Lights must be adequate, and may be either natural or artificial.

5) The killing room must be at least 80 square feet, and not less than 8 feet wide. A bleeding trough of adequate capacity must be provided.

6) The dry plucking room must be separate and shall not be less than 10 feet square.

7) A separate room must be provided for the storage of live poultry in crates and batteries. This room shall be at least 200 square feet. The storage crates must be lower than 1 foot from the floor, and at least 2 feet away from the wall.

8) Running hot and cold water shall be provided for toilets, and for flushing of the premises. The toilet rooms must be ventilated.

9) The room for the storage of feed must be ratproof.

10) All doors, windows, and other openings to the outside must be screened.

11) Suitable measures must be taken to eliminate all offensive odors.

12) No poultry shall be killed in the basement rooms.

13) A separate feather receptacle shall be provided for all loose feathers.

As regulations are quite inclusive, the newly constructed poultry houses in Detroit are definitely model plants. All existing houses are subject to a rigid sanitary inspection. Recommendations are made and must be complied with as soon as possible. The ordinance is written so that noncompliance makes it easy for further action in the local courts.

The poultry division of the Detroit Health Department consists of one supervising veterinarian, and seven lay inspectors. The division is a part of the meat-inspection division, and its policies are directed by the chief veterinarian, and the director of the food bureau. The supervising veterinarian performs all final condemnations, supervises the actions of the lay inspectors, issues all permits on new houses, answers complaints, and assigns the inspectors to their various duties. The lay inspectors all have ratings with the Civil Service System of Detroit as senior health inspectors, and they are all instructed in fundamental poultry pathology as well as general sanitary inspection routines. Three of the men are assigned as live poultry inspectors, one man performs the duties of a dressed poultry inspector, and the remaining three men work in the field inspecting retail stores, and custom slaughtehouses. The men change assignments every two months.

In compliance with that part of the ordinance which states that poultry must be inspected at central concentration points designated by the Board of Health, we have designated two such points. One concentration point is situated at the Eastern Farmers' Market on the east side of Detroit. The other point is situated at the Western Farmers' Market situated on the west side. These two points were designated because 90 per cent of the poultry industry in Detroit is conducted in these two vicinities. There are two inspectors stationed at the eastern market. These two men have definite houses to call upon at least eight times daily. There are 20 wholesale poultry houses on this market. During their rounds the men examine the loads of poultry which are present at the houses, and charge the owner of the poultry at the established inspection fee. They then pay frequent visits to the killing rooms to oversee the slaughter and dressing. When a load is being graded, the inspector stands by to destroy culls and to condemn the condemnable birds. Their men are also responsible for the sanitation of the plants and their surroundings.

There is one man stationed at the Western market, and he is responsible for five wholesale poultry slaughterhouses, and conducts his inspections in the same manner as the two men stationed at the eastern market. There are 17 wholesale slaughterhouses outside of the eastern and western

market zones. The owners of these houses send their poultry to the nearest concentration point where it is given an antemortem inspection. The dressed poultry is then inspected by the freelance field man.

The men on both markets also make inspections of all farmers' stalls. In this routine of inspection, the men watch for emaciated birds and birds with overloaded crops, which they order removed when they find them.

Duties of the Dressed Poultry Inspector

We deviate from the ordinance in our inspection of dressed poultry by inspecting shipped-in dressed poultry at its destination point at the various terminals throughout the city. We do this because of the volume of poultry involved. The perishability of the product precludes any unnecessary hauling or delay. As a result, our inspector calls at the terminals and freight depots to inspect the dressed poultry. He inspects at least 10 per cent of any large shipment, and all of a small shipment of 20 boxes or less. Our chief problem in the inspection of dressed poultry is improper chilling, freezer burns, and bruises. The inspector pays daily visits to 13 terminals. It might be interesting to note that in 1942 we inspected 12,027,985 pounds of dressed poultry. Aside from the inspection service protecting the consumer against diseased and inferior poultry, we have been able to save considerable amounts of money for both consignors and consignees by correcting various conditions as we have found them. Improper chilling alone will render many thousands of pounds of poultry inedible and unfit for human consumption.

Duties of the Field Men

As previously mentioned, we assign one field man as a freelance inspector. His duties are to call on the 17 wholesale slaughterhouses outside of the eastern and western market zones. The live and dressed poultry which is handled by these houses is inspected at either concentration point. The inspector then arranges his work so that this poultry which has already received an antemortem inspection will be seen when it is dressed. This inspector also makes it a point to call on 20 establishments who handle only dressed poultry. This poultry is usually inspected at its point of arrival and the inspector merely checks on the sanitary conditions at the plant. The city is divided into the east and west sides, and we assign one field man to each zone. Each establishment on both sides of the city is visited at least once a month by our inspectors. The duties of the inspectors are to correct insanitary conditions which are present, and to ascertain that the store or plant complies with the ordinance. Some of the conditions which they correct are unclean batteries, benches, and utensils; unclean counters and toilets; improper handling of poultry; and improper condemnation of sick poultry. They also see that all employees hold health cards; that no poultry is kept in store windows; and that no poultry is allowed to run loose in the establishment. The field men average eight inspections daily. Weekly reports are turned in by all of the men. When a condition presents itself which needs correcting, the inspector first gives the person in charge of the establishment a verbal order to correct the condition. The inspector then makes a return call, and if nothilng has been done, he issues a written field order giving the person responsible a definite length of time to correct the condition. If the condition is not corrected in the specified time, the supervising veterinarian issues a court order, and the person is taken to court. We had 139 court cases in 1942 concerning ordinance violations.

Listed below is the type and number of poultry establishments which come under the poultry inspection service of the City of Detroit.

Type of Business	Number
Wholesale Poultry Slaughterhouses...	42
Retail Poultry and Fish Stores.....	61
Custom Slaughterhouses (Religious Slaughter)	20
Retail Live Poultry Houses.....	18
Retail Poultry Slaughter (No fish)....	54

In 1942, our inspectors inspected 607,812 coops of chickens, and 12,027,985 pounds of dressed poultry. We condemned 270,505 pounds of poultry and issued 288 field orders. Our largest percentage of condemnations were for emaciation in the live birds, and spoilage in the dressed poultry. Tuberculosis ranked second, with the leucosis syndrome third.

In the short time that the poultry inspection service has been functioning, we feel that it is performing a definite service in the best interests of the citizens of Detroit.

Gleaned From the Nutrition Section

A good portion of farm crops is not suitable for human food. The most important function of farm animals is to convert into human food the vast acreage of crops grown. In converting feed to food, another function of the improved farm animal is the conversion of carbohydrate to fat.

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The livestock industry has been called upon to increase production, notwithstanding that many feedstuffs essential for a sound feeding program are not available. The bright side of the outlook is that veterinary science and biochemistry have made notable advances, in recent years, which will help to overcome the difficulties.

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Of foremost importance in feeding animals are the best sanitary conditions that can be provided. In this connection, attention is focused upon the control of infectious and parasitic diseases. Parasitized or infected animals cannot be properly nourished. It is wasteful to try.

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The foremost problem in the feeding of animals is protein. While there is a shortage of fish meal and tankage, owing to interrupted importations, microörganisms in the digestive tract of ruminants supply many of the amino acids required for the nutrition of that class of livestock. This is not true of hogs and poultry. These need animal proteins. Soybean oil meal partially supplies the deficit, though, like other plant food, it is deficient in calcium.

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In swine and cattle, sunshine and irradiated yeast serve to good advantage in supplying vitamin D, and neither is costly. For poultry, if fish oils are not available, the activated, animal-sterol type of synthetic vitamin D is satisfactory. Rock phosphate devoid of fluorine is a natural product that supplies both calcium and phosphorus. The result of feeding fluorine-containing rock phosphate is low feed consumption, milk production, and rate of growth and gains.

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White or white-capped corn is low in vitamin A. When fed, provision must be made to supply it. Fortunately, vitamin A can be stored in the animal structure. The reserve will carry animals for a certain period. Pasture and green forage build up the vitamin reserve.

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Swine require five of the vitamin B fractions: thiamin, riboflavin, niacin, pantothenic acid, and pyridoxine. Vitamin B deficiency may, therefore, occur when hogs are fed a restricted ration. Its manifestations are rough skin, rough coat, unthriftiness, nausea, kinetic symptoms, and slow growth. Dried brewers' yeast is thought of in this connection, but liver meal is really the only product that could correct this deficiency completely. In poultry, the vitamin B situation is even more critical.

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There are three safe sources of phosphorus in animal feeding: Steamed bone meal, calcined rock phosphate (minus fluorine), and dicalcium phosphate. Farmers are urged to use mineral supplements and feeds to which minerals containing phosphorus have been added in one of these forms. The present shortage of steamed bone meal is unfortunate. Raw bone meal may contain spores of anthrax and blackleg.

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Officials of the United States Bureau of Animal Industry and nutritionists from the agricultural colleges met in February for the primary purpose of planning the conservation of proteins of animal origin: meat scraps, fish meal, tankage, liver meal, and by-products of milk. In swine and poultry, these are essential to reproduction and growth. A voluntary agreement was reached with the Food Industries Council on the mixing of animal proteins with other feedstuffs in satisfactory proportions.

A Missouri farmer reported to St. Louis War Bond Headquarters that "even my turkeys are scratching for victory!" He displayed a $5 gold piece which he said his fowls turned up in the barnyard. A worker at the bond booth transferred the "illegal" coin into "legal" War Stamps.

The only War Bond you'll ever regret is the one you didn't buy.

Persistence of Immunity Against Infectious Necrotic Hepatitis in Sheep Vaccinated with an Alum-Precipitated Toxoid

E. A. TUNNICLIFF, D.V.M., M.S.
Bozeman, Montana

A STRONG immunity against infectious necrotic hepatitis (black disease) was demonstrated by Tunnicliff and Marsh[1] in sheep vaccinated with an alum-precipitated toxoid. This evidence of resistance was obtained experimentally and from controlled field trials. Most of the experimentally vaccinated sheep received one 5-cc. dose of the precipitated toxoid subcutaneously. The immunity of these sheep was challenged by the intravenous injection of *Clostridium novyi* toxin. These sheep were immune to 34 m.l.d. of toxin, 251 days after vaccination. In controlled field tests, the vaccinated and control sheep on five different ranches were exposed to the natural infection active on those places. The results very definitely proved the beneficial value of the toxoid. In a second publication by Tunnicliff,[2] additional experimental evidence was presented, showing that the same vaccination procedure immunized sheep for as long as seventeen months against at least 34 m.l.d. of *C. novyi* toxin injected intravenously.

During the last three years, a great deal of commercially manufactured vaccine, in this instance the aluminum hydroxide precipitated anaculture, has been used with satisfactory results in infected areas of Montana, Idaho, Washington, Oregon, and California. In Australia, black disease no longer seems a major problem, in spite of its widespread distribution, because of the satisfactory results following vaccination. At least some of the vaccine used there was a concentrated alum-precipitated anaculture.

After the persistence of immunity had been determined to be at least seventeen months, another group of sheep was vaccinated to find out how much longer this resistance would hold. If sheep retained this immunity for four or five years, then, under ordinary field conditions, they would in all probability be immune for life.

Experimental Procedure

The sheep used in the test here reported were mature, fine-wool, grade ewes in good physical condition weighing 86 to 166 lb. They were part of the experimental flock maintained by the laboratory. Detailed records are kept of all individuals of this flock, so the entire history of each sheep was available. The experimentally vaccinated ewes reported in 1939 and 1940 were also from this flock. The area in which this experimental vaccination was carried out was free from black disease, hence any immunity that the sheep may have developed must have been the sole result of vaccination. The ewes were vaccinated with a single 5-cc. dose of the alum-precipitated toxoid injected subcutaneously. The toxin used in the challenge injections was produced by strains of *C. novyi* isolated from black disease sheep tissue. Ammonium sulfate was used for the precipitation of the toxin, which was then dried and stored in tightly stoppered tubes at ordinary refrigerator temperature. In this condition, the toxicity has remained constant for several years. Sheep were injected intravenously with the toxin and the guinea pigs received it subcutaneously. It was necessary to use 2 separate lots of toxin since there was an inadequate supply of lot *A* for the completion of the second group of challenge injections. The smallest dose of lot *A* toxin that produced death was 0.31 mg. per lb. of body weight in control ewe 13 (table 1). Previous tests had shown a direct relationship between the sheep and guinea-pig m.l.d. so that it was possible to estimate closely the m.l.d. for sheep from the results of the toxicity tests with guinea pigs. Although none of the control sheep lived, the guinea-pig tests with the same toxin indicated that the

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[1]Tunnicliff, E. A., and Marsh, H.: An Alum-Precipitated Toxoid as an Immunizing Agent Against Infectious Necrotic Hepatitis (Black Disease) in Sheep. J.A.V.M.A., *94*, (1939): 98-110.

[2]Tunnicliff, E. A.: Black Disease Immunization. J.A.V.M.A., *96*, (1940): 105-106.

smallest sheep dose used, 0.31 mg. per lb. of body weight, was the minimum lethal dose for sheep.

IMMUNITY TESTED THIRTY-FOUR MONTHS AFTER VACCINATION

The results of the vaccination tests are given in table 1. The immunity of 10 ewes (1 to 10), vaccinated Jan. 30, 1939, was challenged by intravenous injection of lot *A* toxin Dec. 19, 1941. Eight of them (1 to 8) were given 24 to 41 m.l.d. (7.3 to 12.6 mg. per lb. of body weight) of *C. novyi* toxin. Both sheep (1 and 2) receiving 41 m.l.d., and half of those (3 to 5) receiving 24 m.l.d. died. The 2 sheep (9 and 10) receiving 12 m.l.d. (3.7 and 3.8 mg. per lb.) lived. This group of sheep had been vaccinated thirty-four months and nineteen days prior to the time their immunity was tested.

TABLE 1—Immunity Test of Sheep Vaccinated Against Black Disease

		Challenge Injection of *Clostridium novyi* Toxin Intravenously				
				Dose		
Sheep No.	Date Vaccinated	Date	Toxin Lot	Mg. per lb. Body Wt.	M.L.D.	Result*
1				12.6	41	D
2				12.6	41	D
3				8.3	27	D
4				7.4	24	D
5	1/30/39	12/19/41	*A*	7.4	24	D
6				7.4	24	L
7				7.3	24	L
8				7.4	24	L
9				3.8	12	L
10				3.7	12	L
11				0.37	1+	D
12	Controls			0.37	1+	D
13				0.31	1	D
14				3.6	12	L
15				3.6	12	L
16				3.6	12	L
17	1/30/39	11/5/42	*B*	3.6	12	L
18				3.6	12	L
19				3.6	12	L
20				3.6	12	L
21				3.6	12	L
22	2/10/38			3.6	12	L
24				0.20	1—	L
25	Controls			0.33	1+	D
26				0.30	1	D

*D = died; L = lived.

IMMUNITY TESTED FORTY-FIVE AND FIFTY-SIX MONTHS AFTER VACCINATION

Nine vaccinated sheep were retained for a further test of immunity made on Nov. 5, 1942. Eight ewes (14 to 21) were vaccinated Jan. 30, 1939, and 1 ewe (22) was vaccinated Feb. 10, 1938. Lot *B* toxin was used in the challenge injections for this group, in which preliminary titrations were made with control ewes (24 to 26). The 2 sheep (24 and 25) receiving 0.33 and 0.30 mg. per lb., respectively, died. Ewe 26 survived 0.20 mg. per lb., thereby establishing the m.l.d. at 0.30 mg. per lb. of body weight. This unit was unchanged Nov. 5, 1942, as determined by toxicity tests on guinea pigs.

Vaccinated ewes (14 to 22) were injected intravenously with 12 m.l.d. (3.6 mg. per lb.) of lot *B* toxin Nov. 5, 1942. All the vaccinated ewes lived, and the only ill effect noted was a moderate anaphylactic reaction within the hour after injection of the toxin. The interval between vaccination of these ewes and the challenge injection was forty-five months and five days for the larger group, and fifty-six months and twenty days for the 1 sheep.

DISCUSSION

There was a very strong production of immunity in the sheep following vaccination with the alum-precipitated toxoid. Furthermore, this immunity has persisted at a fairly high level for a considerable period of time.

As shown in the two preceding publications, a single vaccination with the toxoid raised the antibody level sufficiently high to neutralize 34 m.l.d. of toxin injected intravenously 251 days later. Beyond the level of 34 m.l.d., the resistance of the sheep was not challenged. However, another group of sheep that had been vaccinated in a similar manner was still refractive to 34 m.l.d. of toxin injected intravenously seventeen months after vaccination. Apparently, the level of this immunity had not fallen to any appreciable extent in the time that had elapsed between tests made at 251 days and again at seventeen months.

In the experiments covered by the present report, a part of the vaccinated sheep were given challenge injections thirty-four months after vaccination. Both ewes that received 41 m.l.d. died, as did half of those receiving 24 m.l.d., but the 2 that were injected with 12 m.l.d. lived. These results indicated a decline in the antibody level during the interval between the 17- and 34-month tests. The sheep whose immunity was challenged forty-five months after vac-

cination by the intravenous injection of 12 m.l.d. of toxin were as solidly immune as those that had been similarly tested at thirty-four months. There was 1 sheep available from a group that had been vaccinated fifty-six months previously. This ewe was as solidly immune as any in the 2 preceding groups. The immunity in the experimental sheep, at approximately a 12 m.l.d. level, was as strong at forty-five and fifty-six months as it had been at thirty-four months. Inasmuch as the productive life of a sheep rarely exceeds eight years, these results indicate life-time immunity from a single vaccination.

CONCLUSION

One single subcutaneous vaccination with a 5-cc. dose of alum-precipitated toxoid immunized sheep against the intravenous injection of 12 m.l.d. of *Clostridium novyi* toxin for at least forty-five months and in 1 case for fifty-six months. Experimentally, this was an actual neutralization of a large dose of toxin four to four one-half years after vaccination, which under ordinary field conditions is assumed to be the equivalent of lifetime immunity.

It is, therefore, concluded that a single vaccination under all ordinary conditions will produce lifetime immunity.

Since there is a prospect of many veterinarians being thrown into the food inspection division of the armed forces, this analysis of the veterinary officer's relationship to the command on the one hand and to those who furnish the food on the other, is worthy of profound attention.

The Babcock Test

When in 1890, Professor S. M. Babcock, University of Wisconsin, developed the butterfat test that will bear his name in the ages to come, he scorned the idea of procuring a patent for his invention on the ground that the taxpayers of Wisconsin had paid him for doing that task, notwithstanding that in his hand he held a fortune as the accumulation of money is called. A practical means of determining the amount of butterfat a cow is giving is classed with the great discoveries of history. Little as it is known to the man on the sidewalk, the inventor's name is indelibly embossed on the minds of men capable of appraising the value of his work. The centennial anniversary of his birth could have been celebrated, Oct. 22, 1943. A fine tribute to his memory by E. B. Hart is published in the October 25, 1943, issue of *Hoard's Dairyman*. The world does change, for if Stephen Moulton Babcock had perfected his butterfat test in 1943 without getting a steel-riveted patent he would be dubbed a soft old fool for sacrificing the real fortune he earned.

Science and Politics

Is science too haughty and politics too vulgar to work in double harness? Seems to us that the big job is to be high-minded enough to keep the two up to a common level, since in the democratic process, politics must forever be the workshop in which science learns its trade and thereafter labors. Not to be able to do that is a confession of failure.

We've had letters and heard murmurs that the JOURNAL meddles in politics—horrible sin. That is saying that it must not meddle with conditions under which it must survive or perish. The misunderstanding seems to arise from not making a distinction between politics and political parties. We don't know how to separate the two. Do you? The truth is that no branch of science can afford to be too haughty to meddle in politics. Not doing so is not doing its duty to the country that gives it a place to work in. Perhaps, science takes itself too seriously to be scientific.

If you know all the breeds of dogs on sight you *are* a dog man.

Negro farmers in the South will have raised 30 million chickens by the end of 1943.—*Poultry Tribune.*

A high-producing hen requires less feed per dozen eggs than a low producing one. If, for example, an 80-egg hen eats 70 lb. of feed a year, the 200-egg hen eats only 80 lb.

Dog World answers "What is a Belton": An English Setter of white coat background with large amounts of spotting, ticking, or flecking. If the coloring is blue, the dog is a Blue Belton which is not a special breed.

Heard at the Illinois Conference on Swine Diseases

Forty per cent of the pigs farrowed fail to reach the market.—*Graham.*

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Stillborn and weak litters may be caused by iodine deficiency. The prevention is feeding the sows 3 gr. of potassium iodine weekly during the last two months of gestation.—*Peterson.*

• • •

To render complete service to his clients and community, a veterinarian should report infectious diseases to the proper regulatory officials.—*Bower.*

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Litters showing inappetence, apathy, and lowered vigor seventy-two to ninety-six hours after farrowing may have ketosis and should be treated with 5 cc. of 50 per cent glucose, three times a day. The disease occurs also in sows after they have farrowed. It resembles the sleepy type of ketosis in cows.—*Peterson.*

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The protein supply will be short and the animal and vegetable proteins out of balance. There will also be a shortage of carbohydrate grains. For fattening on legume pasture, vegetable proteins are satisfactory and also for drylot feed of pigs pastured at weaning time, but not satisfactory for continuous drylot feeding even with the addition of alfalfa and vitamins.—*Fairbanks.*

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There is a shortage of 2,500,000 tons of protein for poultry production. The industry is now worth nearly two billion dollars. With less labor, feed, equipment, and transportation the poultry situation is critical and the government is asking for a 1 per cent increase in eggs and 3 per cent in poultry meat. The annual production now is 60,000,000,000 eggs and 4,000,000,000 pounds of poultry meat. There are 213,000 commercial poultrymen and 5,500,000 farm-flock raisers.—*Carpenter.*

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Veterinarians have tremendous responsibilities and can fulfill them, provided there are enough of them to fill all positions available. If we have a repetition of the conditions which prevailed after the last war, we can look for more encroachments, because we shall not have a sufficient number to supply the needs of the increasing opportunities.—*Hardenbergh.*

• • •

There is no effective drug for swine erysipelas. Serum treatment is satisfactory but gives but passive immunity. It is more practical to vaccinate pigs against erysipelas when they are 2 to 3 days old. The dose is 0.25 cc. for sucklings and 1.0 cc. for adults. On badly infected farms, vaccinate all hogs. The serum-culture method is the best known for controlling erysipelas.—*Peterson.*

• • •

In controlling brucellosis, if reactors are found, consider all sows infected, segregate the gilts at weaning time, and retest them before breeding. Keep them away from the infected until the disease is disposed of. Reacting boars should not be used. Another plan is to test and segregate reacting boars and sows, and do this until two negative tests have been obtained. Avoid reinfection from purchased replacements.—*Hutchings.*

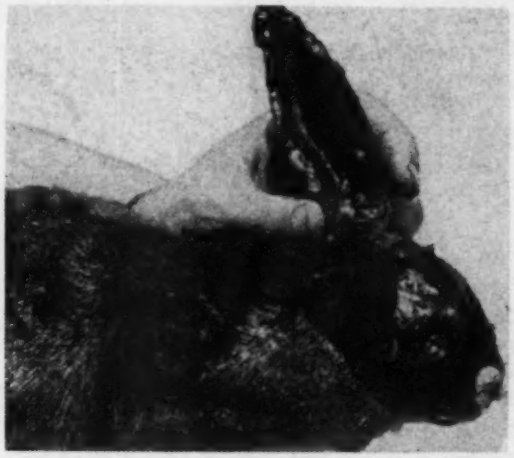
The Interstate Way

Last year, three cow dealers were fined $50 each for shipping cows into Los Angeles County (California) without a permit, and last month we reported the despair of a Wisconsin farmer who brought abortions to his clean herd from a neighbor's supposedly clean farm.

There can be no objection raised to restricting the movement of livestock, interstate, as a sanitary measure except that it doesn't exactly close the gaps against the flow of disease. Curbing disease among animals by keeping the sick ones at home is good philosophy, but why pin so much faith in policing state boundaries? Blocking the movement of sick livestock should be intercounty, intertownship, or better still, interfarm, as well as international and interstate. Putting up a big gate won't keep the cows out of the cornfield if the fence is no good. "Interstate" in the livestock sanitary program is but a strong link in a weak chain.

Diseases of Domestic Rabbits

In an official bulletin of the USDI, the Fish and Wildlife Service publishes a refreshing brief on the common troubles of the rabbitry—refreshing because free of the hypothetical hokum that keeps cropping up in books on rabbit pathology. Says the foreword: "The diseases of domestic rabbits are different from most of those observed in other kinds of farm stock." This seems to be proved in the deluge of literature that overlooks that theorem. Living in the everyone-his-own-rabbit-doctor period of rabbit husbandry, the pathologic pictures drawn for the rabbit man and veterinarians have not been clear. In framing answers to questions on rabbit diseases, an editor must always be careful to reach for the same book to avoid perpetuating confusion. It is, therefore, pleasant to note that scientists of the wildlife service have come into the domestic arena to remove *snuffles et al.* from the vocabulary of the animal pathologists. It took a long while to remove *epizoötic* from the horse-doctor books, but it *did* finally go.



—After Vail and McKenny, 1943.

Fig. 1—Rabbit affected with myxomatosis.

Rightly, this bulletin tells the rabbit man to watch his sanitation and management, the two master measures of animal production now taken for granted in other fields, if not always practiced.

Watch out for *myxomatosis*, a fatal, insect-borne, virus disease brought in from Mexico in 1928 and now seen as far north as Oregon. Its manifestations are purulent eyes and nose, swelling of the ears, labored breathing, anorexia, wartlike lesions of the ears, nose and feet in the recovered cases. The disease affects adults of 60 days and over. Rare in the younger animals. Prevention, control, and postmortem lesions are described.

As of *spirochetosis*, rabbit syphilis, or vent disease, due to *Treponema cuniculi*, one is reminded that there are other "vent diseases," bacterial (filth) in nature to be differentiated by microscopic methods. This disease is ushered in by the appearance of denuded spots about the pudendum, which change to blisters and scabs. The duration is ten days to two weeks. Healed animals may be bred. Mating should always be preceded by examination of the genital organs for the presence of lesions. For the female, lanolin and calomel, 3 : 1, is rubbed into the sore area 3 to 4 times a week. The male's sheath is irrigated with potassium permanganate. Recovered animals are not immune.

Among the noninfectious diseases, the most prominent one is *mucoid enteritis*, or bloat, a disease of considerable importance where large numbers of rabbits are raised. Although attempts to isolate a causal agent have failed, its microbial nature has not

—After Vail and McKenny, 1943.

Fig. 2—Characteristic posture of a rabbit affected with mucoid enteritis.

Abstracted from USDI Conservation Bulletin 31 by Edward L. Vail and F. D. McKenny, Fish and Wildlife Service.

been eliminated. Prominent symptoms are anorexia, dull-looking eyes, ruffled fur, thirst, and grinding the teeth, together with bloated abdomen in variable degree. Constipation or gelatinous diarrhea may exist in lieu of bloating. Intestinal and gastric stasis are conspicuous. Some cases show blood and ulcers in the lumen, *post mortem* and dryness in parts that should contain liquids. The mortality runs around 95 per cent and there is no effective treatment. Water in but small amounts, greens, and cautious feeding of grain as the disease proceeds, sums up the therapy recommended. The true nature of this disease rests in the field of experimental medicine.

Sore hocks, is an injury of old, heavy rabbits and rabbits kept under poor conditions, on "hardware-clothed bottoms," especially of urine-soaked, insanitary hutches. Rabbit urine is particularly irritating to the skin. The symptoms are ulcerous sores below the hocks, stilted allure, cramped and humped position, manifestation of pain (raising and lowering the feet), and in some cases sores on the bottom of the fore feet. Because of the thin fur on its legs, the Castor Rex is particularly susceptible.

Sore hocks is prevented by the use of clean sod or board floors. Animals with serious abscesses are killed. Zinc or iodine ointment and pine tar are the local applications recommended along with the dressing appropriate for wound treatment.

The bulletin covers briefly the main points about mammitis, indigestion (slobbers), diarrhea, wry neck, urine burn, wet dewlap, and external and internal parasites.

A Bit of History

In that interesting and delightfully written book "My Life on the Range" by the late John Clay he states that the Wyoming Cattle Growers Association was a powerful influence in the range cattle industry in the early eighties. The first meeting that John Clay attended was in 1884 and in describing the meeting he states, "Dr. Hopkins, the state veterinarian (of Wyoming), was a windy chap, but he had a lot of knowledge and knew his business exceedingly well. His judgment was only fair, and his methods out in the field were not very tactful, but he was earnest and indefatigable in his work. We had had several disease scares in the East and consequently the doctor had a fertile field to work in. Not only at the meetings of the association did the doctor keep driving his ideas home, but all round the state he hammered away at the stockmen, showing up the grave possibilities of disease working havoc on the plains. The seed bore fruit as we shall see hereafter. . . .

"The work of Hopkins, his enthusiasm backed by facts, and the generally unprotected condition of the open range from disease had their effect on minds of men like Cary, Sturgis, and others of that stripe all over the West, Governor Routt of Colorado voiced the sentiments of that state, Conrad Kohrs and Granville Stuart spoke for Montana, while Texas was waking up. In the East, men like DeWitt Smith of Bates, Ill., and Alvin H. Sanders of the *Breeders Gazette* were beginning to see that something must be done to prepare for coming troubles, while Professor Law, our best veterinarian of those days, was also on the alert. Many times during the summer those matters were discussed in Cheyenne and Chicago. The result was the calling of a meeting in Chicago in early November to discuss this subject. This led to the formation of the National Cattle Growers Association of America which held a meeting early in November at the Sherman House in Chicago."

Clay states that "a strong executive committee was appointed and much work was done. Several deputations went to Washington and the result was the creation of the Bureau of Animal Industry which continues as our main support in the control of disease. The main work in getting this bureau established was carried through by D. W. Smith, Bates, Ill., Major W. A. Towers of Kansas City, Mo., Elmer Washburn of Chicago, Ill., Major E. Alvord, of Massachusetts, Dr. Azel Ames of Montana, Alvin H. Sanders, Chicago, Ill., Thos. Sturgis, Cheyenne, Wyo., and the writer" (John Clay).—*N. S. Mayo, Highland Park, Ill.*

And, here we have to dig 'em.—"When the potato blight struck Ireland in the 1840's," an NBC commentator (Nov. 7, 1943) said, "The disease was so bad that the potatoes dropped from the vines no bigger than hazelnuts."

Canine Urology

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San Luis Obispo, California

UROLOGIC experiments performed on dogs have contributed greatly to the science and practice of human urology. Veterinarians have known for years that castrated dogs do not develop prostatic hypertrophy, and that symptoms of hypertrophy of the prostate in dogs can be relieved by castration. Today, human beings with carcinoma of the prostate are being successfully treated by castration. Goldblatt[1] and others[2,3] have shown experimentally that hypertension in dogs can be produced by partial constriction of the renal arteries by means of metal clips, which result in a partial renal ischemia. This monumental work is the stimulus which has led to the cure, in some cases, of men suffering from hypertension by the removal of an atrophic kidney.

The embryology, anatomy, and diseases of the urinary tract are practically the same in man and dogs. Canine urology is analogous to infant human urology because of the smallness of the organs and the size of the urologic instruments necessary to study these cases.

Among the various diseases of the genitourinary tract encountered in dogs may be listed: *infectious*—nephritis, pyelonephritis, atrophic pyelonephritis, ureteritis, cystitis, urethritis, prostatitis, cervicitis and vaginitis; obstructions—ureteral and urethral strictures, calculi in the kidneys, ureter, bladder, and urethra (the latter has been observed in male dogs only), and prostatic hypertrophy; neoplasms of kidneys, bladder, urethra, ovaries, uterus, cervix, vagina, and testes.

The tumors of the genitourinary tract in order of frequency are[4]: interstitial cell adenoma and seminoma of the testes and a type of lymphoblastoma commonly termed venereal sarcoma. The latter usually occurs in the vagina and on the glans penis and prepuce. The following occur sporadically and about equally: embryonal nephroma; carcinoma of the kidney, bladder, urethra, ovary, and uterus; leiomyomas of the bladder, uterus, cervix, and vagina.

Nephritis, prostatitis, and tumors of the testis are the most frequent urologic diseases in dogs.

The history and findings of urologic diseases in dogs may include: lassitude, loss of appetite, loss of weight, poor coat, vomiting, chills, fever, diarrhea, colics, dysuria, incontinence or continence of urine, frequent urination, the passage of stones or blood in the urine, and palpable tumors of the kidney and genitalia. In any case where the diagnosis is obscure, one should always think of the possibility of a lesion of the urinary tract. If uremia is suspected, a blood-urea test should be done as instrumentation or operation on a uremic dog may prove fatal. If uremia is present, every effort should be made to treat it by parenteral fluids, aminophyllin, glucose, etc.

A centrifuged specimen of urine should be examined for pus and blood and a Gram's stain made for the detection of bacteria. The streptococcus is the most common organism found, although the staphylococcus, *Eschenichia coli*, *Bacillus proteus*, and other organisms may be found in individual cases. If the urine from a female dog reveals pus,

[1]Goldblatt, Harry: Studies on Experimental Hypertension: V. The Pathogenesis of Experimental Hypertension Due to Renal Ischemia. Ann. Int. Med. *11*, (July, 1937): 102.

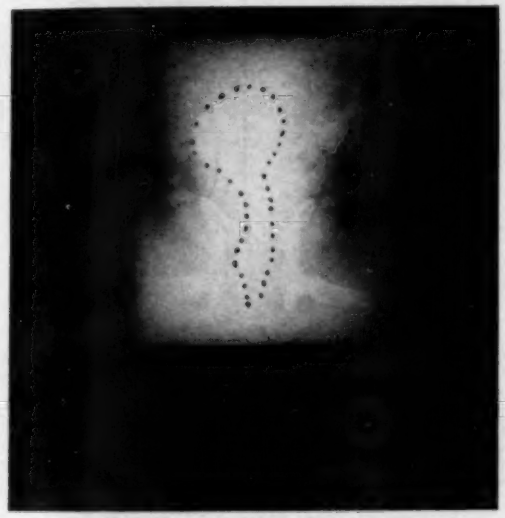
[2]Freeman, N. E., and Page, I. H.: Hypertension Produced by Constriction of the Renal Artery in Sympathectomized Dogs. Am. Heart J. *14*, (Oct. 1937): 406-414.

[3]Houssay, B. A. and Fasciolo, J. C.: Experimental Hypertension. J.A.M.A. *109*, (Dec. 11, 1937): 2002.

[4]Schlotthauer, C. F.: Experimental Farm, Mayo Foundation, Rochester, Minn.: Personal communication to the authors.

blood, or bacteria, it is necessary to obtain a catheterized specimen in order to rule out contamination from the vagina and external genitalia. A catheterized specimen can easily be obtained with a Coudé tipped catheter, No. 12 or 14F, guided by the aid of one finger in the vagina. A rectal examination in the male dog may disclose an enlargement of the prostate or a prostatitis. Abdominal palpation should never be neglected, as often an enlarged kidney, distended bladder, or urinary calculus may be felt.

A plain x-ray film of the abdomen will reveal renal, ureteral, or bladder calculi, if present, because 90 per cent of urinary calculi are radiopaque. The roentgenologic



Cystogram.—Note position of the bladder and the elongated and dilated urethra.

technique is about the same as that employed for an infant of the same weight.

Excretory (intravenous) urography is very unsatisfactory in dogs because of two factors. First, the size of the renal pelvis and ureter is so small that they cannot contain sufficient medium to cast a good shadow. Second, ureteral peristalsis is constantly removing the excreted medium and propelling it into the bladder. Because of the large capacity of the bladder this organ should be, and invariably is, well visualized in the excretory urogram. The excretory cystogram may reveal calculi, tumors, enlargement of the prostate and diverticulae of the bladder. A film taken of the bladder after the dog has voided will reveal the amount of residual urine present.

Many variations of technique[5] have been tried in the hope of improving the diagnostic value of excretory urography in the dog, *i. e.*, sublethal doses of medium, elevation of the foot of the table, distension of the bladder with fluid, and the application of abdominal compression binders, but to no avail. One has to accept the fact that the normal renal pelvis and ureter of the dog will not visualize well in the excretory urogram except in rare cases; and that if visualization is good, it represents some pathologic change in the urinary tract, generally obstruction. Ten cc. of Neo-iopax or Diodrast may be given intravenously if an excretory urogram is desired. The x-ray films are then taken at five, fifteen, and thirty minute intervals.

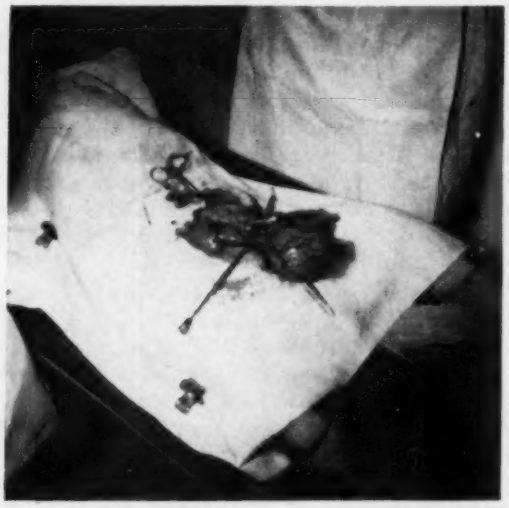
Cystoscopy is easily performed on the female dog. With the dog under the influence of intravenous nembutal or pentothal sodium, and strapped, back down, on a dog board, the urethra is dilated with Van Buren sounds to size number 22 or 24 (French). One does not have to worry about any damage to the urethra following such dilatation. A 21 French Braasch direct vision cystoscope is then introduced and the interior of the bladder examined. If a tumor or suspicious lesion is observed, a biopsy may be taken with a Braasch specimen forceps through the cystoscope. If cystoscopy is imperative in a male dog, it may be done through a small incision in the ventral surface of the posterior urethra at the base of the penis. The wound will heal whether or not it is sutured.

The ureteral orifices can be seen very easily, but catheterization of the ureters is quite difficult in some animals[5]. It is possible to catheterize both ureters in about 10 per cent of dogs and one ureter in about 30 per cent. In the remainder, due to anatomical difficulties, catheterization is almost impossible. The ordinary number 4 or 5 (French) ureteral catheter usually works quite well. For a retrograde pyelogram, one injects 2.5 cc. opaque medium (20% solution of Skiodan).

Case Report.—A 4-year-old female champion Chow was brought to us with a one year history of lassitude, pain, weight loss,

[5]Greene, L. F.: Dept. of Urology, Mayo Clinic, Rochester, Minn.: Personal communication to the authors.

poor coat, and attacks of urinary continence which had to be relieved by catheterization. The dog had been given several courses of sulfathiazole, with only temporary improvement. A little gravel had been noticed in the catheterized urine specimen on two occasions, but no stones were passed to the knowledge of the owner. A catheterized urine specimen was loaded with pus and gram-positive bacilli. We examined the dog with a cystoscope and were somewhat chagrined at the appearance of what we thought was the bladder, although no ureteral orifices could be demonstrated. A small opening was noted on the cephalic surface of the "bladder," which appeared to be the mouth of a diverticulum. The beak of the scope was inserted into this opening and many stones were observed. An excretory urogram revealed no visualization of the kidneys, although the dye rapidly appeared in the bladder (fig. 1).



Operation.—The bladder, like a pedunculated tumor, was delivered completely out of the abdomen. The hooks identify the ureters.

At operation, multiple stones were removed from the bladder (fig. 2 and 3). The dog made an uneventful recovery except for a slight postoperative wound infection. On the sixth postoperative day, the dog was allowed out of the house and in some manner caused the wound to break open, resulting in an evisceration. Inspection of the edges of the wound revealed very little evidence of healing, *i. e.*, granulation and fibrous tissue.

The eviscerated intestines were irrigated with saline and replaced in the abdominal cavity. Sulfanilamide powder was placed in the abdominal cavity and the wound closed with through and through sutures. The dog succumbed some twelve hours later from shock.

This case demonstrates the amount of elongation of the urethra which may be produced by a constant drag or tug upon it. A bladder full of stones and the normal horizontal position of the dog were responsible for the elongation of the urethra in this instance. The case also demonstrates that the healing of wounds in sick animals may be delayed, and that any wound infection, however slight, may result in a dehiscence of the wound and evisceration upon the slightest provocation.

Operation Completed.—Weight of stone, 90.7 Gm. Weight of largest single stone, 4.2 Gm.

Treatment.—Fluids and sulfathiazole constitute the treatment of choice for infection of the urinary tract. However, if the infection fails to respond to adequate sulfonamide therapy or if the animal has a recurrence of the infection, one should suspect some associated urinary pathology or focus of infection elsewhere in the animal.

Castration is the treatment of choice for prostatic hypertrophy in the dog. Prostatitis, because of the associated urethritis, is best treated by sulfathiazole.

Urinary calculi should be removed surgically. Bladder calculi may be removed through the cystoscope in selected cases.

Neoplasms are removed surgically. Papil-

lary growths in the bladder may be removed and the base fulgurated through the cystoscope or suprapubically. Infiltrating bladder tumors may be removed with a portion of the bladder wall, or the ureters may be transplanted into the colon and a total cystectomy performed.

Severely damaged and infected kidneys should be removed, if the opposite kidney is normal or only slightly damaged.

It must be remembered that uremia and hypoproteinemia are not conducive to normal wound healing. Every effort should be made to prevent a postoperative wound dehiscence and evisceration. Infected postoperative wounds are notorious in this respect.

CONCLUSIONS

Urinary tract disease must be considered as a possibility in any canine case where the diagnosis is obscure.

Urologic examinations are possible in dogs if one has the necessary instruments and a little patience.

Preventive Masks

The wearing of gauze or flannel masks by physicians to prevent contracting contagious disease from their patients is of dubious value. Although such masks enmesh droplets of secretions (salivary, respiratory) thrown into the surrounding air in breathing, coughing and sneezing, they are no barrier to dried bacterial or viral material floating about, nor is the conjunctiva protected by them. According to *Science* (March 12, 1943), they may be actually harmful. Aerosol sprays, ultraviolet irradiation or chemical disinfectants may eventually prove to be more effective. The question is not settled.—*From Queries and Minor Notes, J.A.M.A. Oct. 16, 1943.*

In the practice of veterinary medicine, save perhaps psittacosis, there are no aerial contagious diseases dangerous to the doctor. On the other hand, grave diseases transmitted by direct contact or carrier material are numerous: anthrax, rabies, brucellosis, tularemia, tuberculosis, streptococcicosis, gas gangrene, swine erysipelas, trichinosis, encephalitides(?), swine influenza(?), and certain metazoan parasites.

War Bonds are the raw materials of Victory

John Scott Award to Dr. Stader

On November 18, the Board of Directors of City Trusts of Philadelphia officially presented to Dr. Otto Stader, Ardmore, Pa., the John Scott medal, certificate and premium of $1,000 for the "invention of a reduction splint useful in bone surgery." This award is derived from a bequest made in 1816 by one John Scott, a chemist of St. Patrick's Square in Edinburgh, Scotland, to the city of Philadelphia, the income from which was to be laid out in premiums to those who make useful inventions, together with a copper medal with the inscription, "To the most deserving."

The John Scott fund is managed by the Board of Directors of City Trusts of Philadelphia, comprising twelve citizens appointed by the judges of the Court of Common Pleas. Although little is known as to why Mr. Scott chose Philadelphia as the trustee for his bequest, it is said to have been based on his belief in the fair and broadminded attitude of the people of that city and a desire that no limitation be placed on the locality of the award. To date, citizens of England, France, Holland, Italy, Spain, Japan, Brazil, Canada, and the United States have been recognized and honored.

Dr. Stader was awarded the Twelfth International Veterinary Congress Prize by the AVMA at its annual meeting in August, 1943.

When lactation begins before term, it's a bad sign. Something's gone wrong between mother and fetus. Perhaps, the placenta is terminating fetal life.

The absorptive power of wounds and the somatic dispersal of drugs applied to them was never as well demonstrated as by the appearance of sulfa drugs in the urine after their topical use.

Twice more veterinarians, twice more positions for veterinarians and twice more pay for veterinarians in official jobs are the problems to ponder.

The farm papers of October, 1918—twenty-five years ago—carried a warning from John R. Mohler to look out for foot-and-mouth disease.

Lister's Doctrine in Animal Surgery

THE DOGMATISM of Sir Joseph Lister came upon the practice of medicine in the late 1860's, flourished in the upper cadre of medical scientists in the 1870's, and was widely practiced unchallenged in the 1880's. Yet in 1891, *Manual of Operative Veterinary Surgery* by Liautard dismissed the subject in a few lines by saying that Lister's methods "cannot be recommended to the attention and adoption of the veterinary surgeon." In the chapter on *Surgical Therpeutics*, the reader is told "to free the wound of blood, pus, and any foreign body or other substance capable of *causing irritation*." There was much ado about rolling bandages and applying them neatly "to avoid suffering." Germs were to be taken care of by wadding. Pasteur was quoted as saying that wadding has a direct action on pus and "renders fermentation impossible." These teachings blocked the progress of aseptic surgery in animals because the author of them was regarded as the highest authority in this country. No one was bold enough to protest, least of all down East, and inasmuch as the author was the editor of our only journal, facts about the application of Listerism to animals came but slowly into the clinical field. The exciting revelations (and they *were* exciting) of the bacteriologists, in so far as our surgery was concerned, were dubbed impractical, irrelevant and unnecessary. The idea conveyed never entirely died out for up to this day the teachings of Lister are not set down as the *sine qua non* of a veterinary surgical operation.

The classical surgery of the French schools in the 1880's was *Precis de Chirurgie Vétérinaire*, a treatise of 1650 pages in two volumes by Peuch and Toussaint. It is silent on the teachings of Lister, just as the English literature was. Toussaint is remembered as one of the early veterinary bacteriologists. This can only mean that veterinary surgeons were not quick to comprehend wound infection. To P. and T., peritonitis and gangrene following castration of colts was caused by rough handling of the spermatic cord.

If one turns to *Principle and Practice of Veterinary Surgery* by William Williams (1894), there is no assurance found that Sir Joseph was known in home territory. Here, one is told to make sure that the colt about to be castrated is not sick, that it is dieted for a day, that the scalpel be shaped right and sharp, habitat not filthy, and weather favorable before tackling the job. Several pages go to these directives, none to the little matter of sterilization or otherwise disposing of germs. Antiseptic surgery was then twenty years old. As late as 1911, one might have seen teachers of veterinary surgery wiping bloody scalpels on the seat of the pants. To the more careful, swishing the knife in a creolin solution (all-important drug of the day) was standard precaution. As to sutures and suturing, it would be impolite to tell the incredible truth.

In 1943, things have improved, outwardly. Sites are abluted and shaved and painted, instruments and sutures sterilized, hands gloved or washed, and white gowns worn, all of which is to the good. Yet, the meticulous critic watching for technical flaws might see great gaps wide open for instreaming flora. Excellent literature of forty years ago governing every detail of handling microbes in animal surgery, economic and ecologic factors duly weighed, seem to be forgotten. General knowledge of the tenacity and distribution of the ambient flora surrounding a veterinary surgical operation is useless if every detail of the art of modern Listerism is not kept uppermost in mind in every act.

No wonder that veterinarians have grabbed voraciously at carbolic acid, creolin, iodoform, mercuric chloride, acridine dyes, and the sulfonamides as they came one after the other into his reach. What a relief it must be to throw sulfanilamide into wounds of one's own making.

Quoting from a book* written thirty years ago: "He who bases his management of wounds upon the fact that the new tissue that sprouts from the walls of a traumatic cavity under normal conditions grows safely to a useful, mature tissue without outside help, is the successful healer...We lack the

*Wound Treatment by E. Willis Hoare, L. A. Merillat, *et al.* 1915.

refinement that enables the human surgeon to make and manage successfully enormously large wounds...Is it not fact that we fear the extensive surgical wound because of its bad behavior?...And is it not true that we fear to invade the splanchnic cavities and the synovials?"

As of the 1940 decade, in this connection, one may now report that methods which should have been adopted, boldly and often, fifty years ago are coming into general use through the demonstrations on bovine cesarian sections of Tom Ferguson and the equine abdominal invasions of Jim Farquharson.

Speaking again of the economic and ecologic situations which dog the veterinary surgeon, his task is to overcome them. The "surgically dirty" conditions and the low fees do not change the scientific facts. Rightly, the small animal surgeon may boast of his meticulous ways but his entourage can not be compared with that of the farm.

Clavacin

Clavacin, product of the common mold *Aspergillus clavacus*, discovered by H. W. Anderson, Department of Horticulture, University of Illinois, is said to kill all bacteria killed by penicillin, and others that resist the latter. It has been used successfully against plant diseases, but its toxicity for animals has not been determined. The presumption is that clavacin may prove more useful than penicillin.

In placing sulfonamides in wounds to be sutured for a primary union, the drug must be kept off the edges of the wound because they retard healing. Moreover, smaller quanties are needed than was formerly used. The laws of regeneration were not changed with the coming of sulfa drugs. Germ killers are also cell killers. Warning against the reckless use of these drugs topically are emphasized by military and naval surgeons in the medical press.

Democracy borrows your money; dictators confiscate it. Remember this when you are asked to buy More War Bonds.

Russian Medicine

American, British, and Canadian physicians visited Moscow to gather facts about the Russian medical service. What they saw, says *Time*, was a revelation in medical efficiency, especially in military medicine and in daring ways surgeons of other countries have yet to adopt. Care of the wounded and their rehabilitation is the obsession of a meticulously trained medical corps—trained in the details which restore physical ability. Whole blood transfused within three weeks is widely used, nerve surgery is carried to a high point, mental casualties are almost unknown, prompt attention is the rule, red tape cut down, nurses do everything from building a hospital to treating the injured, hungry men are fed on the operating table to help them stand the ordeal, the chief surgeon is the tough, hard-working 67-year-old Lieut. General Nikolai Berdenko, self-made grandson of a serf, well-known figure in the field of nerve surgery, founder of the Scientific Research Institute of Neuro-Surgery, and profoundly up-to-date in medical lore.

—From Sofoto

Lieut. General Nikolai Berdenko, Chief Surgeon of the Red Army.

CLINICAL DATA

Bloating in cattle is not due to abnormal gas formation but to lack of belching.—*From Dairy Science, Oct., 1943.*

The eating of liver as the cure for night blindness was prescribed by Aristotle, tutor of Alexander the Great, three centuries B.C.

If healthy tissues could be removed from the line of fire, x-ray radiation which is deadly to tumor cells, would solve the therapy of cancer.

Salt and phenothiazine, 15 : 1, set out as the salt lick is a choice method of treating sheep for stomach-worm infection—*H. C. Smith, Eastern Iowa Association.*

In the search for a substitute for citrus fruits as a source of vitamin C, Russians discovered that the leaves of evergreens are antiscorbutic.

Workers of the South Dakota station declare that the ground of old hoglots may yield from 1,800 to 2,000 worm eggs per thimbleful. Were the bacteria count of the thimbleful added to the report, only the astronomist would understand.

Diasone

Diasone is the newest remedy proposed for the treatment of tuberculosis. Its chemical name is disodium formaldehyde sulfoxylate diamino-diphelymsulfone, a sulfa drug, preconized by George W. Raiziss, of the Abbott Laboratories. It is less toxic than Promin heralded, not without reason, by scientists of Parke, Davis & Company as an anti-tuberculous drug. There seems to be no question as to the curative action of Diasone in experimentally tubercularized guinea pigs.

Critical tests on laboratory animals have shown that neither the sulfonamides nor penicillin have any action against such virus diseases as influenza.

Soldiers of the Army of the United States are vaccinated against smallpox, typhoid and paratyphoid fever, tetanus, yellow fever, typhus fever, and cholera, but preventive measures do not stop at vaccination.

Syphilis is now listed among the indications of penicillin. Four apparent cures are reported by the United States Public Health Service. No trace of the infection could be detected 100 days after the treatment was given.—*Science News Letter.*

Vesicular stomatitis is not a new disease but it is a new disease in hogs. The Kansas City (Kans.) outbreak was the first of record. A violent outbreak of that disease in horses occurred in 1917, affecting many mounts from Nebraska to Montreal purchased for the military service of Britain. Like the outbreak in hogs at Kansas City recently, it was first thought to be foot-and-mouth disease.

Beef Blood for Transfusion

Deantigenated cattle blood transfused into normal and experimentally shocked dogs, with the object of using beef blood as a therapeutic substitute for human blood, produced no harmful effect in studies pursued at the Department of Pathology, University of Chicago. By means of a complex treatment of beef blood, which the authors describe in detail, cystine and other amino acids obviously responsible for distinguishing one blood type from the other, are destroyed.—*From Science, Oct. 22, 1943.*

Aerobacter Aerogenes Associated with Acute Toxemic Mastitis in Eleven Cows

STEWART BURKHARDT, D.V.M., B. A. BEACH, D.V.M., and G.R. SPENCER, D.V.M.
Madison, Wisconsin

THE ORGANISM known as *Aerobacter aerogenes* has been reported in a few cases of bovine mastitis. Zwick and Weichel are reported by Munch-Peterson and McMaster[1] to have found 19 cases of mastitis due to *Bacterium lactis aerogenes*. Jones[2] found one case of aerogenes mastitis out of 81 examined. Gilruth and McDonald[3] and Hardenbergh and Schlotthauer[4] reported bovine mastitis caused by *A. aerogenes*. In a recent report Murphy and Hanson[5] made a three-year study of milk and udders of 120 cows and found 79 instances of infection with coliform organisms of which 41 were *A. aerogenes*.

History.—One of us (S.B.) was called to examine 4 aged Holstein-Friesian cows on Feb. 3, 1943. All of the cows had been affected within a period of twenty hours and the owner declared they had appeared normal and given a normal amount of milk the previous milking. The herd consisted of 33 grade Holstein-Friesian cows recently assembled from several sources.

Symptoms.—The onset was sudden; within a few hours the cows became depressed and one or more quarters showed acute swelling. Though there was no history of previous abnormality, the milk from one or more quarters appeared flaky and soon only a small amount of straw-colored fluid was secreted. An extremely hard inflammatory edema appeared in the affected quarters. The rectal temperatures of the cows ranged from 103.2 F. to 107.2 F. Dehydration appeared in eight to ten hours and became marked by forty-eight hours. Complete anorexia was noted from the early stages, and thereafter. Loss of weight was rapid and 3 cows became emaciated in four days. The accompanying table gives the variations in temperature in so far as they were recorded. Other symptoms determined were cold extremities, rapid breathing. and dry noses. Seven more cows became affected during the first week. Four cows, which were given sulfanilamide immediately when symptoms were noticed, had a lower temperature for the first twenty-four hours, and the maximum temperature was lower than in those who failed to get sulfanilamide for twelve to eighteen hours. The latter ran a course of acute illness of about eight to ten days whereas the 4 cows receiving sulfanilamide early were affected about four days. The clinical diagnosis was acute toxemic mastitis. Recovery occurred by three days in 1 cow and more slowly in the rest; however, all of them were nearly recovered in thirty days.

Treatment.—Every cow was given sulfanilamide orally at the rate of 1 gr. per pound of body weight per day. The initial dose given was one-half of the total amount and the remainder was given at eight-hour intervals. Subsequent daily doses were divided into 3 equal parts. Two of the animals affected more severely than the others were given a dextrose and saline solution intravenously at the rate of 1,000 cc. per day for two days. They were also given Neoprontosil infusions of 10 cc. per infected quarter per day for two days. An 8.8 per cent solution of sulfathiazole in propylene glycol was used as an infusion (10 cc.) in 2 cows with no apparent benefit. The sulfanilamide treatment was instituted previous to the determination of the causative organism and results from the program were considered good enough to justify its

Published with the approval of the research director of the Wisconsin Agricultural Experiment Station.

[1]Munch-Peterson, E. and McMaster, F. D.: Survey of the Literature on Bovine Mastitis, Commonwealth of Australia, Council for Scientific and Industrial Research, Sydney, *1*, (1934): 146.

[2]Jones, F. S.: Studies in Bovine Mastitis; III. Infection of the Udder with Micrococci and Other Microörganisms. J. Exper. Med., *28*, (1918): 149.

[3]Gilruth, J. A., and McDonald, N.: Acute Contagious Mastitis in Cows Due to the *Bacillus lactis aerogenes*. Vet. J., *57*, (1911): 217.

[4]Hardenbergh, J. G. and Schlotthauer, C. F.: Incidence of Mastitis and the Infecting Organisms in 4 Dairy Herds. J. Infec. Dis., *40*, (1927): 667-673.

[5]Murphy, J. M. and Hanson, J. J.: Infection of the Bovine Udder with *Coliform bacteria*. Cornell Vet., *33*, (1943): 61-77.

continuation even when no streptococci were found.

Laboratory Examinations.—Samples of the milk of all the cows in the herd were collected aseptically on February 8, and brought to the laboratory for examination. The secretion obtained from the affected quarters was a straw-colored, thick material and over a pH of 6.8 (alkaline in reaction to brom cresol purple). All samples collected were examined by means of the Hotis test and by plating on plain veal-infusion tryptone agar. Three quarter samples from 3 severely affected cows (30, 31 and 33) were diluted in sterile water blanks and plates were poured with dilutions of 1:10, 1:100 and 1:1,000. The rest of the samples were merely streaked on the surface of previously hardened agar plates. After twenty-four hours incubation at 37 C. the plates were examined and representative colonies picked into broth for isolation and further examination. The only organism observed in 10 of the samples, including all but one of the samples from cows showing acute mastitis at this time or later, was a small gram-negative, rod-shaped bacterium of uniform colony and microscopic appearance. Streptococci were observed in 11 other composite samples but none of these was from cows with acute udder swelling and toxemia.

TABLE I—Temperatures Recorded for Four Cows During Part of the Course of the Disease

Cow No.	2/3/43	2/4	2/5	2/6	2/7	2/8*	2/9
28	104	104.2	103.5	103.4	103	102.5	Normal
29	104.4	104.0	104.0	103.5	103	102.8	Normal
30	106.2	106.0	104.5	104.3	103	103	103
31	106.0	106.2	106.4	107.2	105.0	104.8	104.0

*Milk samples were drawn from these cows on 2/8/43.

At the time the samples were collected from the herd, 6 cows were diagnosed as having the acute parenchymatous mastitis with toxemia. In the next five days, 5 more cows showed similar symptoms, and the small gram-negative, rod-shaped bacterium mentioned above had been the only one isolated from all of these 5 cows previous to their showing clinical symptoms of udder inflammation. However, this same organism was isolated from cow 7, which did not show clinical mastitis later. Cow 32, from which no organisms were isolated, had been affected less severely than the others and had partially recovered by the time the samples were collected. Her toxemia was apparently gone and the affected quarter was nearly free from edema and pain. Milk secretions had been reinstituted and grossly the milk appeared normal.

Cow 27 had been brought into the herd while dry three weeks previous to the start of the acute disease. Both of her hind quarters had an extensive subacute mastitis at the time of freshening and the condition did not improve during the subsequent period. The same organism was isolated from these quarters that was found in the quarters showing acute parenchymatous mastitis. It seems possible that the organism was brought into the herd by this cow.

The quarter samples from the 3 severely affected cows plated in dilution were found to have the following numbers: cow 30, 10,800 colonies per cc.; cow 31, 4,000; and cow 33, 8,500.

Numerous surface and deep colonies were picked from the 1:100 dilution plate into nutrient broth and examined in various mediums. It appears reasonably certain that all the organisms in the above counts were of one species.

Cultural Studies.—The organism which was isolated from 10 of the 11 cows affected grew readily on veal-infusion agar and in broth at 23 to 37 C. The surface colonies were large, convex, entire, smooth, moist, and glistening. Nine strains of the organism were examined culturally and found to form no indol, were methyl red negative, Vogues-Prosakaur positive, utilized sodium citrate as a sole source of carbon, and fermented glycerol, salicin, mannitol, dextrose, lactose, aesculin and arabinose with the formation of acid and gas. The organism was streaked on the surface of hardened, eosin-methylene blue, agar plates and found to form large, entire, raised, convex colonies with a dark center and with no metallic sheen. Growth was heavy on nutrient gelatin, but no liquefaction was observed in an incubation period of fifteen days at room temperature. According to the Imvic formula the organism was — — + +. In Parr's[6] classification, the organism would be in the aerogenes group. Following the criteria in Bergey's Manual,[7] the organism would be

[6]Parr, L. W.: Coliform Intermediates in Human Feces. J. Bact., *36*, (1938): 1-5.

[7]Bergey, D. H., Breed, R. S., Murray, E. G. D., and Hitchens, A. P.: Bergey's Manual of Determinative Bacteriology, Williams & Wilkins Co., Baltimore, Maryland, Ed. 5 (1939).

classified as *A. aerogenes*. It was compared with stock strains of *Escherichia coli* and *A. aerogenes* obtained from Professor W. B. Sarles, Department of Agricultural Bacteriology, University of Wisconsin, and with a coliform "intermediate" previously isolated from milk by one of the authors (G.R.S.). In all the differential mediums mentioned above, the organism in question acted like the stock strain of *A. aerogenes* and differed from the "intermediate" and the stock strain of *E. coli*.

Differences between the stock strain of *A. aerogenes* and the organism from the affected cows were the latter's more rapid growth and fermentation of milk, which was acidified and coagulated in eighteen to thirty-six hours. Gas continued to be evolved in large amounts so that the clot became furrowed and torn with the escape of gas. This fermentation resembled, but was not as severe as, the "stormy fermentation" of milk by *Clostridium welchii*.

Three weeks following the period of acute inflammation, samples of blood were collected from cows 30 and 31 to try an agglutination test. The antigen was prepared by growing the organism which had been isolated from the cows during the period of acute mastitis on the surface of veal-infusion agar. It was suspended in an aqueous solution containing 0.85 per cent sodium chloride and 0.3 per cent formaldehyde. The suspension contained about 1 per cent of organisms. Another more dilute antigen was prepared by mixing a suspension of the organisms with formalized saline until they corresponded to tube No. 1 of the McFarland nephelometer. The more concentrated antigen was mixed with the clear serum obtained from the blood of the 2 cows mentioned above and with control serum from a cow in another herd. Antigen and serums were mixed together on a clean glass plate in amounts as follows:

Cc. of serum	*Cc. of concentrated antigen*	*Agglutination*
0.16	.08	—
.08	.08	—
.04	.08	—
.02	.08	—
.01	.08	—
.005	.08	—

No agglutination appeared in any of the mixtures at eight, ten or fifteen minutes. The 3 serums were mixed with the more dilute antigen in small test tubes to make the dilutions following: 1:10, 1:20, 1:40, 1:80, and 1:160. These were held at 37 C. and examined for agglutination at the twenty-fourth and forty-eighth hour of incubation. No agglutination was observed in any of the tubes.

DISCUSSION

A. aerogenes is not usually considered an animal pathogen. The finding of 41 *A. aerogenes* out of 79 coliform organisms causing udder infection by Murphy and Hanson indicates that it may be as important as *E. coli* in producing bovine mastitis. Milk is an ideal medium for the growth of *A. aerogenes*, and the organism is present in the feed and bedding in the environment of the cow. Therefore, it would seem likely that it might occasionally enter and grow in the udder and elaborate inflammatory irritants there.

In this outbreak, whether the causative organism got into the herd by purchase of an infected cow or merely came from the environment of the cows is not known. Once in the herd, however, it seems to have spread rapidly until a total of 11 cows were affected.

SUMMARY

An outbreak of acute mastitis with toxemia in 11 of a herd of 33 dairy cows during a period of ten days is described. The isolation of *Aerobacter aerogenes* from the secretion of 10 of the affected cows, and the finding of no organism from 1 cow is reported. Treatment consisted of sulfanilamide, frequent milking, and general supportive measures. Recovery occurred in from three to thirty days.

Vitamin Therapy a Doctor's Job

The scientific use of vitamins is hampered considerably by the fact that individual requirements vary within species and strains of the same species. Speaking only of the B complex, in herds and flocks some may need this and some that fraction. In other words, the scientific treatment of disease is a matter of diagnosis, a "bedside" study of the given case, a doctor's job.

The Delayed Use of Hog-Cholera Virus in Immunization of Swine Against Hog Cholera

In the fall of 1923, I was called to see 190 summer pigs, weighing about 60 lb., with a severe case of influenza. Postmortem examinations showed considerable pneumonia. Hogs had been lost in these same lots with hog cholera within the past few months. The pigs did not appear to be in proper condition for serum-virus vaccinations, but to leave them exposed to hog cholera might prove costly. We know that serum alone will produce a passive immunity against hog cholera, lasting for a shorter time than many practitioners seem to believe.

I decided to inject 50 cc. per head of whole-blood anti-hog-cholera serum (That was the kind of serum used in those days.) and a mixed bacterin for swine. I also used medicinal treatment. I delayed the use of virus for seven days, and at that time injected 3 cc. of hog-cholera virus, alone. Seven pigs were lost between the administration of the serum and the administration of the virus. After that, everything went along satisfactorily.

If I am called to vaccinate swine which I believe are unfit for the serum-virus treatment, because of other infective diseases, I treat the drove and vaccinate later, providing there is no reason to believe that there has been or is liable to be exposure to hog cholera and there is no immediate need for serum-virus vaccination. When hog cholera is in the neighborhood or on the next farm, and the pigs are not in condition for the serum-virus treatment, I do not hesitate to use the delayed-virus method.

I have used this method on many occasions in hogs with pulmonary or intestinal troubles. I have used it in cholera-infected droves when other complications were present, giving the virus on the fifth and sixth day. If the hogs were not in condition when it was time to inject the virus, I always had a chance to wait a while longer and give both the serum and virus, which would correspond to what was known as the double treatment of thirty years ago. I have never found it necessary to give both serum and virus at the later date.

In the last nineteen years, I have used this method in 26 different cases, the last time in the fall of 1942, and the results have always been satisfactory. The injection of the blood of healthy hogs, along with the necessary treatment for their condition, and the delaying of the injection of the virus for five or six days, give the pigs a chance to get in better condition to withstand the virus reaction. I did, on one occasion, inject the virus on the eighth day after injection of the serum, and while everything went along fine, I believe that the fifth or sixth day is the proper time for the use of the delayed-virus treatment.

I am not advocating the use of this method, except in problem droves of swine. It requires extra work, an extra trip, and handling the pigs twice, but I have found it well worth the extra work and effort in droves unfit for the simultaneous treatment. If this method is to be used, it should be used with caution and the injection of the virus should not be delayed longer than the sixth day.—*J. F. McCabe, D.V.M., Williamsburg, Iowa.*

Protein Concentrates from Grasses

Workers at Pennsylvania State College propose to replenish the shortage of protein required for feeding livestock by concentrating the protein of grasses, only a part of which is used as pasture, hay, and silage. The protein of grasses is extracted by treating dried ground grass with sodium hydroxide and filtration and bringing the filtrate to a pH of 3.6 with hydrochloric acid. Further concentration is effected with alcohol. The final product, when dry, is 72 per cent protein and is extractable at the rate of 220 lb. per ton of grass. The announcement suggests that either the crude or more refined product could be made from forage otherwise wasted. The making of a useful poultry and hog ration is the object.

Sweetpotato Feed for Steers

Dehydrated sweetpotato meal is a promising substitute for corn in the fattening of steers, according to experiments conducted at the Georgia Coastal Plain Experiment Station which showed that it was 3

per cent more efficient than corn. Dried sweetpotato pulp, a by-product of starch manufacture, and 1 part to 3 parts of shelled corn was also found to be a good steer feed. The discovery, says the USDA, will enable the South to increase its tonnage of finished beef, since in the Southeast the amount of available grain is short and sweetpotatos plentiful.

Sweetpotatos may be used also to good advantage in the fattening of hogs. The back fat, plate fat, and cutting fats of sweetpotato-fed pigs weighing 175 lb. was increased about 75 per cent of rendered lard.

Actinomycin

The newest rodent killer is an extract derived from a species of Actinomyces found in soil. It was discovered at Rutgers University and the Merck Institute of Therapeutic Research in searching among microbes for a germ-killer. The new product, named actinomycin for its generic source, is a terrifically potent killer of mice, rats, and other rodents. It kills rodents at 1 part to 1 million parts of the animal's body weight, these laboratories announce. H. J. Metzger, chairman of the Committee on Nutrition (AVMA) is named among the discoverers. Attempts at synthetic production are under way with promise that a crystalline actinomycin is forthcoming. Says *Science News Letter:* "It will lighten the labor of modern Pied Pipers whose job is the wholesale elimination of the rodent pests that sabotage our food supply and carry germs of bubonic plague and other diseases."

Large-Scale Production of Penicillin

A method of producing penicillin faster has been developed by the Fluid Research Fund, Stanford University School of Medicine. Production has been cumbersome and time-consuming through having to provide air exposure to 500 sq. cm. per liter of culture medium and having to grow the mold from five to eight days under that condition. The difficulty has been overcome in part by using the process of vinegar-making with wood shavings as the basis of the method. A continuous flow of penicillin is obtained by passing the mold culture through the treated wood shavings, so arranged as to be exposed freely to circulating air.

Hogs Poisoned by "Clay Pigeons"

A drove of 115 pigs running on red clover suddenly began dying from symptoms resembling blue rock poisoning, with which I had an experience a year ago. The owner denied that there had been any trap shooting done on the premises, but from inquiry among some old timers it was learned that the field had been used for that purpose forty or fifty years ago, whereupon many pieces of blue rock were found lying about. The field had been used for hogs before, but in this instance the feeders had been set right over the place where the trap shooting had been done. Notwithstanding that the field had been plowed many times, the blue rock still remained toxic.—*W. A. Beard, D.V.M., Greenview, Ill.*

Psittacosis and Pneumonia

To precisely what extent certain birds are reservoirs of viruses which infect other animals and man and pave the way for the bacterial infections of the respiratory tract is not known, but the fact that the virus of psittacosis, or parrot fever, is a source of one form of pneumonia of man has been established. Workers at the Rockefeller Institute of Medical Research, having shown that the common pigeon and chicken are susceptible to psittacosis and that the virus of that disease was isolated in 25 per cent of a series of pneumonia patients along the Atlantic Coast, open a broad field for investigation in veterinary medicine. In pneumonia, and perhaps in other organic and systemic infections, the microbic life we have known, studied, and incriminated for so many years may be but ever-present confederates of pathogens called viruses which lay down a fertile soil for bacterial propagation. Virus carriers and inapparent virus diseases among the animals we handle, together with virus-carrying parasites coming to light in the study of comparative pathology, plus the rôle of normal body resistance, give the doctrine of causation a new point of departure. The viruses of equine and swine influenza, of hog cholera, of canine distemper, and of psittacosis of birdkind are revising the Pasteurian concept of etiology.

NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

Nutrition and Reproduction of Farm Animals

STERILITY in farm animals can be conservatively placed at 10 per cent. If the number of animals kept on the farm in the hope that they will eventually reproduce is included, this figure is about doubled. This is especially true of cattle. Field inspection has led us to expect that two out of every 20 breeding females will have serious breeding difficulties and that a like number will be "shy breeders." A survey by Vergeront (1940, 1941) of herds of members of the Dairy Herd Improvement Association of Wisconsin shows that 8 to 10 per cent of all dairy cows disposed of during 1938 to 1940, inclusive, were sold because of sterility. These figures represent 10,000 to 12,000 disposals annually, during these years. Other summary data have been collected by Ralph Phillips (1939).

The fact that reproductive performance is related to nutrition is well established. The classical studies of Hart and coworkers at the Wisconsin Experiment Station in 1911 demonstrated this principle, but the specific factors which caused the reproductive failure in this instance did not become clear for more than a decade. In 1924, these factors were definitely shown to be deficiencies of calcium and vitamin A. Since the date of these experiments, many new facts have accumulated to show that dietary deficiencies may directly or indirectly cause a disturbance in reproduction of farm animals.

It is now a reognized fact that efficient reproduction depends upon the satisfaction of all nutritive requirements. The reduction of any particular constituent of the ration to minimal or subminimal levels may be the occasion for reproductive failure. Such dietary factors as calcium, phosphorus, iron, cobalt, manganese, protein, energy, and vitamins have been shown to be needed for successful reproduction. Fortunately, the nutritive requirements for reproduction are met by the usual feeding practices in most instances.

ENERGY AND REPRODUCTION

Under farm conditions, particularly on the marginal farms and in many parts of the range country, feed energy becomes one of the limiting factors for successful reproduction. Under such conditions, an increase in the total feed consumption will appreciably improve reproductive performance.

Underfeeding to the point of inhibiting growth, or causing the loss of weight in the adult, will in itself greatly interfere with or inhibit reproduction. An unpalatable ration, a marginally deficient ration, or a very restricted ration, may so adversely affect appetite as to produce inanition and reproductive failure. On the other hand, supplying excessive amounts of energy results in an over fat animal, a condition long associated with sterility. Such animals are adequately fed as far as energy intake is concerned, but they suffer from other dietary deficiencies which result in "shy breeding," partial, or complete sterility.

PROTEIN

Under normal feeding conditions, reproductive failure is not apt to occur as the result of low protein intake. Protein from restricted sources, fed at minimum levels, can disturb reproductive efficiency. It is necessary not only to maintain protein balance in the ration but to provide a protein containing the proper combination of amino acids. Since ruminants have the capacity to synthesize proteins by means of the bacteria inhabiting the rumen, their protein requirements are less exacting than animals

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Bibliographic references and the bibliography appearing in the report have been omitted to conserve space.

with simple stomachs. Therefore, a well-selected ration containing enough energy to maintain good condition will usually satisfy the protein requirements for reproduction in ruminants.

In the case of swine, the protein requirements are more exacting than those of the ruminant. Under farm conditions, this species lives on a more restricted diet as corn or barley forms the main bulk of the ration. Such rations must be fortified with protein supplements which furnish the essential amino acids not present in adequate proportions. Plant proteins have not given the best results as supplements to cereal feeds for swine. The inclusion of animal protein, or liberal amounts of legume hays, such as alfalfa, has been found to be necessary for successful reproduction.

MINERALS

The work of Eckles, Becker and Palmer (1926) emphasized the essential nature of phosphorus in relation to reproduction in cattle. These authors pointed out, however, that sunlight and green feed were also contributing factors to the results obtained on their phosphorous-low rations. Theiler *et al.* (1927, 1932) likewise found that reproduction in cattle was disturbed when they were pastured on phosphorus-deficient pastures. Since cattle are a roughage-consuming species, they normally obtain relatively large amounts of calcium through the hays ingested. Their chief need for a mineral supplement is one of additional phosphorus.

On the other hand, swine are more likely to suffer from a calcium deficiency since their rations are composed chiefly of grains, which are relatively high in phosphorus. A mineral supplement containing calcium should be fed to swine. For more detailed information on the mineral nutrition of farm animals the reader is referred to the monograph of Mitchell and McClure (1937).

The rôle of the so-called "trace" elements in nutrition has been ably reviewed by Underwood (1940). Iodine is needed by all classes of livestock in the goiter regions. Iron, copper, and cobalt have also been shown to be required in certain regions of the United States as well as in other countries. The lack of iron causes nutritional anemia or thumps in young pigs and it is necessary that supplementary iron be made available in their rations.

That manganese is essential in reproduction has been observed in studies on the albino rat. In recent investigations at the Wisconsin station, female rats on a manganese deficient diet were shown to develop ovulatory arrhythmia, while male rats developed testicular degeneration which inhibited the formation of spermatozoa. Further, it has been shown in preliminary experiments with young, growing, and developing bulls that a ration of corn and timothy hay which contained 28 ppm. of manganese, while adequate for growth, was inadequate for good quality semen production. The same basal ration plus 52 ppm. of added manganese permitted the production of normal semen with active, viable spermatozoa.

VITAMINS

Vitamin A.—Among other physiological actions, a lack of sufficient vitamin A is probably one of the outstanding causes of sterility among farm animals. With the Wisconsin station having demonstrated that nutritional deficiencies caused reproductive failure in cattle as the result of a lack of calcium and vitamin A, it remained for Hart and Guilbert (1933) at the California Experiment Station to emphasize the importance of vitamin A in reproduction under practical conditions. They found in the range areas that lack of vitamin A was intensified by drought conditions.

Phillips *et al.* (1941) have shown that the vitamin A content of the blood plasma is rapidly decreased under practical farm conditions during the winter feeding period in Wisconsin and that the vitamin content of the blood can be maintained by the feeding of shark liver oil. The carotene and vitamin A stores are rapidly depleted during the six-months feeding period following lush fall pasture. Several heavily producing cows on drought-stricken pasture during July and August, and lush pasture through September and October went into the winter feeding period low in blood plasma vitamin A, and subsequently developed a poor breeding record.

A vitamin A deficiency can be accurately diagnosed by blood analysis. Outward symptoms are shown by unthriftiness, rough hair coat, poor gains in weight, and poor eyesight in semi-darkness. In order to avoid the effects of vitamin A deficiency in reproduction, bright green roughage of less than a year old must be used. A special

effort should be made to obtain and feed bright green hay at all times and to use either grass, legume, or corn silage. In order to have corn silage of maximum carotene, or vitamin A, content it should be made when the corn is in the early dough stage.

While this discussion on vitamin A has referred primarily to cattle, it is no less important for other livestock. Forty per cent yellow corn in the ration has been considered to be sufficient to satisfy the requirements for the vitamin A precursors. Recent observations may raise a question in this regard. Such storage factors as moisture content, type of facilities, and length of time stored are extremely important considerations in the preservation of the vitamin A potency of yellow corn. White corn has no vitamin A potency.

Hart and Guilbert (1941) have recently shown that the cow's nutritive status with respect to vitamin A may determine the success with which she may withstand infection with *Brucella abortus*. A literature review of vitamin A deficiency and requirements of farm mammals was recently published by Hart (1940).

Vitamin C or Ascorbic Acid.—The Wisconsin station (1941, 1940-41) has recently shown that ascorbic acid is closely related to successful reproduction. It is helpful in maintaining fertility in the bull, stallion, jack and boar, as well as in the shy breeding cow and mare. It appears to stimulate the production of high quality semen with actively motile sperm, and to be necessary in ample amounts for certain early phases of pregnancy.

Farm animals usually synthesize their own supply of ascorbic acid and the rate of synthesis is conditioned among other things by the nutritive status of the animal with respect to vitamin A. Animals with ample stores of vitamin A are less likely to suffer from an ascorbic acid deficiency. From research now available, it appears that peak levels of ascorbic acid are necessary in the female during early pregnancy, and that the male likewise needs additional ascorbic acid at times in order to maintain breeding efficiency. Therefore, ascorbic acid treatment may be required in the occasional animal which is unable to synthesize enough ascorbic acid to maintain its fecundity. This can be given by mouth to the animal with a single stomach, but it must be injected subcutaneously in the ruminant.

Two Gm. of ascorbic acid per 1,000 pounds live weight should be fed daily to the horse and proportionately less for swine. In cattle, it is injected subcutaneously at the rate of 2 Gm. per animal every three or four days for three to six weeks. Bulls may be treated at any time, but cows should receive their first treatment on the day of heat, should then be bred immediately, and the treatments continued at three-day intervals for a period of three weeks.

Crystalline ascorbic acid is dissolved in boiled water (three-fourths of a level teaspoonful in two teaspoonfuls of water), or physiological salt solution, and injected at once. It should not be stored as it is readily destroyed by the oxygen of the air and by light. Veterinary supply houses prepare solutions of ascorbic acid which can be used directly. These are convenient, but unless they are prepared by reliable companies may not be stable in storage.

Some drugs, like the anesthetic chloretone, cause a rise in the rate at which the animal synthesizes ascorbic acid. It can be fed to cattle, but it should be used only under the direction of a qualified veterinarian.

Ascorbic acid therapy for sterility has been used successfully with heavily used mature bulls, developing young bulls, cows which come into heat at normal intervals but fail to breed on repeated service, and on cows which apparently conceive but return on the forty-second or sixty-third day after breeding. Bulls respond in approximately 9 out of 10 cases, while cows will respond in 2 out of 3, or 4 out of 5 cases, depending upon the type of sterility encountered.

Vitamin E or a-tocopherol.—It is most unfortunate that the descriptive phrase, "the antisterility vitamin," was given to the fat-soluble vitamin E (*a*-tocopherol) discovered by Evans *et al.* in 1922. This phrase has persisted and nutritional experimentation with vitamin E and reproductive failure has been quite disappointing in species other than the rat. During the interval since its discovery, researches have shown that a vitamin E deficiency in the chick causes malnutrition of the cerebrum (Pappenheimer, 1940); that a vitamin E deficiency in the human, rabbit, rat, dog, guinea pig, and duckling, causes muscle dystrophy, a wasting of the muscle fibers (Eppstein and Morgulis (1940), Anderson *et al.* (1939), Pappenheimer, Goettsch and

Jungherr (1939)); that vitamin E is widely distributed in farm feeds such as the hays, grains, straws, and silage (Palmer *et al.* 1940); that vitamin E is apparently not needed for reproduction in the goat (Underbjerg *et al.* 1938); and that pure vitamin E is an ineffective supplement for the correction of sterility in the bull or cow (Lardy *et al.* 1941).

OTHER FACTORS

Factors other than those mentioned undoubtedly are concerned in reproduction. Hogan and Johnson (1940) have shown that certain practical rations are inadequate for the sow. At the Wisconsin station, unsuccessful parturition and failure to suckle young pigs could be directly related to the diet of the sow. The inclusion of 15 per cent of ground alfalfa hay corrected the deficiency of the ration. Other practical feeds, such as tankage or fish meal, were found to contain the corrective factor or factors.

A discussion of nutrition as it relates to reproduction of poultry has been purposely omitted, since the subject was adequately reviewed in 1939 by Titus, and in 1941 by Cruickshank.

SUMMARY

1) It has been repeatedly demonstrated that nutrition is directly and specifically related to reproduction of farm animals.

2) Ample energy is necessary for normal reproduction. Unless a restricted ration is fed, a ration which supplies sufficient energy will supply ample quality and quantity of protein for cattle. Swine require supplementary protein for the usual farm rations. Protein of animal origin or from good quality green legume hays, such as alfalfa fed in liberal amounts, will adequately fortify the swine ration.

3) Dietary phosphorus, calcium, iron, iodine, and manganese, have been shown to be essential for successful reproduction of farm animals.

4) *Vitamin A* is an indispensable dietary factor for reproduction. Its presence is necessary in more than minimal amounts. Growing, healthy calves requires 18 micrograms of vitamin A per kg. of body weight per day in order to maintain an adequate blood plasma vitamin A content of 10 micrograms per 100 cc. of blood plasma. Dairy cattle require a blood plasma vitamin A level of 15 micrograms or more per 100 cc. if they are to successfully maintain milk production and reproduction.

5) *Vitamin C* or ascorbic acid administration has been shown to have a direct stimulatory effect upon sterile males and "shy breeding" females. It, too, is an indispensable factor for successful reproduction. Unlike vitamin A, where the entire source is exogenous, farm animals synthesize their own ascorbic acid and *require the added vitamin only when their own synthetic powers fail to provide ample amounts.* Therefore, its use is limited to the occasional animal. It can be fed to animals with single stomachs, but it must be subcutaneously injected into ruminants. The anesthetic drug, chloretone, can be fed to ruminants to effect a rise in blood plasma ascorbic acid. However, its use should be attempted only under the direction of a qualified veterinarian.

6) There is no convincing evidence that the addition of extra vitamin E to normal rations has a direct or specific effect upon reproduction in practical herd and flock management.

7) Certain as yet unidentified dietary factors are required for successful parturition and suckling of young pigs by sows fed certain practical rations. Alfalfa hay, tankage, or fish meal, were found to be effective supplements to such rations.

One Cost of Bovine Brucellosis in Britain

Under the headline "Sick Cows Cost Britain 40,000,000 Gallons of Milk," a dispatch to the *Chicago Tribune* from London dated November 8, 1943, states that Britain has lost that much milk a year from bovine contagious abortion, according to J. B. Lawson, a veterinarian, speaking before the Farmers Club in that city. Calfhood vaccination is being used as a control measure, he said, based on the good results obtained in America.

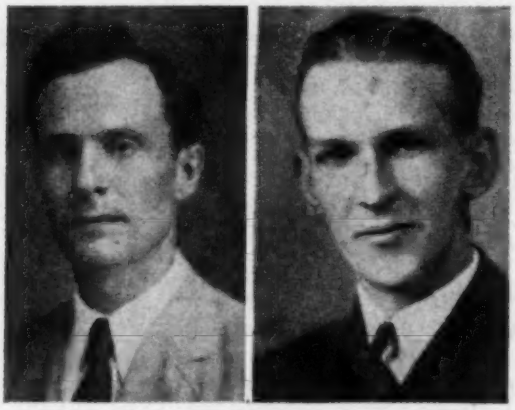
It will be recalled that Dr. C. K. Mingle, of the Federal Bureau of Animal Industry, flew to England last year to aid the British authorities in starting production of Strain 19 brucella vaccine.

Congress appropriated $3,500,000 for the procurement of food for the war dogs. Order 58, Food Distribution Administration, now in charge of meat inspection, covers the dog-food situation.

EDITORIAL

Suppressing Academic Freedom: The Oleo War

The bulletin of Iowa State College of Agriculture, entitled "Putting Dairying on a War Footing" by Professor O. H. Brownlee, is credited/charged with having started the war on oleo now raging. The bulletin, obviously based upon scientific research, compares oleo favorably with butter in food value and palatability and it hints that the dairy interests have been too successful in suppressing it. It raised a big rumpus all over the country. Iowa dairymen came out with a threat to have the appropriations of the college cut down—the old game of muzzling academic freedom by special interests. The game is as old as the dollar itself and academic freedom generally loses—for the time being.



Professor T. W. Schultz (left), head of the Department of Economics, Iowa State College, who resigned on the issue of suppressed academic freedom, and Professor O. H. Brownlee of that department, who wrote the bulletin that aroused the dairymen.

In this case, the head of the Department of Economics, Professor T. W. Schultz, found it convenient to resign after writing President C. E. Friley that other articles on controversial issues have been squelched. Other repercussions are the demand of the American Association of College Professors for an investigation on the status of academic freedom in American agricultural colleges and of the Iowa Farmers Union which is not in sympathy with such tactics. The whole truth is wanted. Governor Hinkenlooper has thrown the troubled situation into the lap of the State Board of Education. Meanwhile, Schultz is out of a job, Brownlee probably scared, the allegedly offensive bulletin has not been revised as the Iowa dairymen demanded, and President Friley says, it's too bad, Schultz was a good professor.

The *Farm Journal*, upper bracket farm paper of Philadelphia, certain Iowa newspapers, and the *Chicago Journal of Commerce* are printing some embarrassing material about the unfortunate episode. One of them asks, "Why should anyone believe that any of the college's future research publications are impartial." The *Farm Journal* opens fire with the headline "Battle of Oleo that Started in Iowa Last Summer," under which the issue is pointed out as having reached beyond the status of "a dairy fuss." The fight, says this paper, is over the way an agricultural college should be run. In short, is this highly subsidized branch of the American educational system to become the Nemesis of academic freedom? Veterinarians have reasons to believe that it might become just that. We know exactly nothing about the technical merits of the argument, but we do know that it is unfortunate that a publicly endowed college can be made to cringe before the lashes and squeezings of any special interest. In our little bailiwick, academic freedom is a sacred thing. In effect, the unidentified "committee of dairy and farm interest" marched on Ames to tell the professors just what part of their researches they should report and just what part they must suppress. The agricultural college professors are paid by those who eat as

well as those who make the people's food. Were this "firing of Schultz" a criterion (we hope it is not), may God have mercy on the U.S.A. The agricultural college is filling many a key place in the country's affairs. It's the wrong place to squelch academic freedom. May the professors win.

Veterinary Practice Gains a Point

When the District Court of the United States, Northern District of Illinois, Eastern Division, directing the attorney general to file a Bill of Particulars in the case of the United States of America *vs.* Associated Serum Producers, Inc., *et al.*, the defendants, indicted under the federal antitrust laws, won a decisive victory for the college-trained American veterinarian. That is, who's who in this underhanded attack on the scientific operations of veterinary medicine on American farmers will have to come out in the open in American fashion and tell under oath just *what* and just *who* they represent. We say *underhanded* advisedly because the charges have the flavor of un-American tactics. Purporting to correct an alleged evil in the making and selling of *animal medicine*, only those engaged in the making, selling, and distributing of anti-hog-cholera serum and virus were indicted, notwithstanding that the handling of *animal medicine* is but a minor sideline of the indicted companies, and those truly engaged in the animal medicine business were not named. If the attorney general was just outwitted by supersalesmen of medical quackery, the fact remains that playing around with an industry as vital as pork production, didn't fool the judge.

Looking and Waiting in far-away jungles for what your War Bonds and Stamps are buying
He does not complain just wonders
OUT OF SMALL ARMS AMMUNITION

Veterinary Medicine in Wartime

That future military organization will embrace full use of veterinary science is self-evident. The placing of the food-inspection service under the direction of the Royal Army Veterinary Corps (The JOURNAL, November, 1943, p. 274) of the British troops operating in the Middle East is illustrative. That certifying to the health of animals and the safety of animal-food products falls within the province of veterinary officers in this day of medical education, scientific research, and disciplinary training, is incontrovertible. None knows better than the military man that his strength lies in mobilizing the details of every art and every science. Inasmuch as applied veterinary science concerns the abundance, the safety, and the nutritive value of the soldiers' food supply, it can not forever remain but a fringe of national military superiority in any country.

There was a lot of wisdom and foresight in the congressional action that placed the veterinary service of our armed forces under the wing of the Surgeon General, irrelevant as some may have thought that action to be. The first general staff, hurriedly whipped together at Chaumont in building up the American Expeditionary Forces of World War I, for example, disagreed with the Congress and wrenched the veterinary service from the Surgeon General's command, only to realize the magnitude of the error within a year. This unwise action of the General Staff of that expeditionary force must always remain an important event of the world's veterinary history. The arbitrary separation proved to be unworkable. So, when the war went into its serious phase, the veterinary service was quickly put back where the Congress had ordered. As wiser men of broader minds were brought into General Pershing's staff, antiscientific tactics were thrown out and the service restored to the keeping of the Surgeon General. The terrors of disease had been weighed.

Slowly and surely, the world is getting acquainted with veterinary science, *vide* these incidents, the article by General Kelser in this issue of the JOURNAL, and the deluge of facts coming to light on the bearing of veterinary science on food production and usage. It all adds up to the too obvious

fact that up to now, civilization in general does not yet comprehend the rôle of domesticated animals in the drama of life, even as war threatens to wipe it from the face of the earth. If there is any greater comedy than veterinary science humbly supplicating with leaking eyes, folded hands, and bended knees, just what is it?

Long on Enterprise, Short on Project

One who will trouble to comb the literature for editorial opinions and articles published through the year on veterinary student enrollment will discover that both the theme and pandect were confined to the replacement of veterinarians normally lost through death, disability, and old age. There is nowhere a hint on the wide-open prospect of expanding professionally applied veterinary science and furnishing the personnel required to man the enlarging field. As much today as in the 1860's a great basic industry—livestock and food—must protect itself against the ravages of disease and it develops the means to do so. If the veterinary profession does not furnish the manpower, other institutions must, and they do. The fields of research, education, and practice, have had to be filled with an ever increasing percentage of nonveterinary workers. To cite but one example: the ratio in the federal meat inspection service is now 2,540 lay inspectors to 1,649 veterinarians. In the field work of the BAI, the ratio is more favorable: 122 lay inspectors to 734 veterinarians but the trend is toward a less favorable percentage. In New York, a state senator had to come to the rescue of the people by pointing to the insanitary abattoirs of that state, and in Illinois, the task was left to a Chicago newspaper. Everyone knows of the "pullorum testers" the poultry industry has had to train to carry on, not to mention the vast nonprofessional education the whole livestock industry clamors for in the absence of a convenient doctor.

Until every position and office in research, education, police, and practice, requiring knowledge of veterinary medicine is filled by a "baccalaureus" of the veterinary educational system, let's ponder this moot question of surplus personnel.

By defining *enterprise* as *work under way* and *projects* as *work yet to be done*, the reader will understand what is meant by our headline.

Are We Too Many or Too Few?

In the study of this moot question of too many veterinarians or too few, let's ponder this one: "The income of physicians in the United States increased 73.9 per cent in the last decade. They grossed a billion dollars and netted 640 million dollars in 1941, but the number of doctors in the same period increased by 10,000." — *From "Medicine" in Time.*

Of course if we stand by and let laymen do the job and don't even try to expand the scope of our branch of medicine as the physicians are doing, we'll mighty soon be a "drug on the market." On the other hand, should we get down to the business of taking over some of the undone veterinary work, we will have to supply the personnel needed. The food production industry isn't going to go out of business because there is a shortage of veterinarians. The shortage of veterinarians (in fact the absence of them) started the livestock industry on the road to protect itself against animal diseases back in the 1860's or, before we had a veterinary profession at all, and it is still compelled to do so now, because we have to confess that there is a shortage of college-trained animal doctors. There is nothing to fear but ourselves.

Under the stress of war, government geologists have located rich sources of aluminum bauxite, chromite, manganese, tungsten, nickel, zinc, mercury, magnesium and copper.

The new way to say it is "Science will win the war and sweeten the peace."

It's our guess that agricultural scientists are going to discover domesticated animals 'fore long.

There are now (October), 125,000,000 hogs in the United States, 20,000,000 more than a year ago and 55,000,000 over the average for 1931-1940—and not a squeal in the newspapers.

CURRENT LITERATURE

ABSTRACTS

A Food-Borne Streptococcus Outbreak

The eating of ham sandwiches at a church lunch in a rural Massachusetts town resulted in an outbreak of food poisoning, involving more than a hundred persons. The hams were smoked, cooked for six hours, and ground for use, by capable persons. The source was a reliable packing plant in business ninety-three years. One of the two hams used was softer and lighter in color than the other. The ground meat of the two was mixed. The sandwiches were made on Saturday, wrapped in wax paper, and stored in the church basement for the Sunday lunch. The exposure was about twenty-four hours at room temperature. Investigation revealed that the hams had been contaminated by the woman who cooked one of them. She was in the prodromal stage of scarlet fever. Among the victims of this outbreak were 24 cases of scarlet fever, 56 cases of septic sore throat, 7 of diarrhea, 4 of vomiting, 3 of nausea, and 8 miscellaneous cases not reported.—[*A. V. Getting, M.D., S. M. Wheeler, M.D., and George E. Foley: A Food-Borne Streptococcus Outbreak. Am. J. Pub. Health, 33 (Oct. 1943): 1117-1123.*]

Sulfamerazine

Considerable effort is being made to find a sulfonamide with less tendency to produce crystals in the urinary tract than the ones commonly used at comparable blood levels. Crystalluria and hematuria rather frequently follow the use of sulfathiazole and sulfadiazine. Sulfamerazine is more slowly excreted by the kidneys than these, is rapidly absorbed by the gastrointestinal tract, diffuses readily in the blood and body fluids, and is well tolerated. Critcal evaluation of its toxicity showed it to be about the same as the other sulfonamides. Only benign urinary complications occurred but no conclusions could be drawn as to their relative frequency.—[*Paul O. Hageman, M.D., et al.: Sulfamerazine, a clinical study of its Pharmacodynamics, Therapeutic Value and Toxicity. J.A.M.A., 123 (Oct. 9, 1943): 325-330.*]

Bovine Tuberculosis in Argentina

In 1941, 22,000,000 lb. of meat were condemned at national abattoirs on account of tuberculosis. The incidence of tuberculosis was about the same for the total cattle population as in the United States before 1917 (5%). Among milk cows, the incidence was from 25 to 70 per cent. In Buenos Aires, from 25 to 40 per cent of milk samples examined contained tubercle bacilli. In La Plata, the percentage of infected milk samples was from 15 to 25 per cent and in Córboba, 12.2 per cent.

In 1904, Ligniéres reported 6 infants suffering from intestinal tuberculosis of bovine origin. In 1911, Ezizalde found a bovine case in an 18-month-old baby. Among 127 strains recovered from sputum examined by Poiré and Arseno-Caranza in 1927, none were bovine. In 5 cases of erythema nosodum, Arena, Schwartz and Cetrángola found 2 bovine and 1 atypical. Other workers recovered bovine types from pulmonary and cutaneous cases.—[*R. F. Vaccarezzo and A. R. Arena: Tuberculosis of Bovine Origin (title translated). Rev. Asoc. Med. Argent. 57 (Jan.-Feb. 1943): 10.*]

The Genetic Nature of Lymphomatosis of Chickens

An eight-year study of the White Leghorn flock of the University of California was conducted with the view of determining facts as to progeny-test selection for resistance and susceptibility to fowl paralysis. High and low lines of susceptibility were established by mating, and the incidence of the disease in the two groups was studied through the experimental years. Details as to the results of inbreeding are given. Relatively resistant and susceptible lines were developed in eight years of progeny-test selection, both showing parallel yearly fluctuations in mortality. Until a better method of controlling fowl paralysis is found, this test provides a means of keeping the incidence of the disease within "reasonable low limits."—[*Lewis W. Taylor and I. Micheal Lerner, Division of Poultry Husbandry, and K. B. DeOme and J. R. Beach, Division of Veterinary Science, University of California: Eight Years of Progeny-Test Selection for Resistance and Susceptibility to Lymphomatosis. Poultry Science, 22, (Sept. 1943); 339-349.*]

BOOKS

Diseases of Small Domestic Animals

We'll only have to pull the review of this one out of the brief case; it's long been catalogued among the favorite brands and it's a fourth edition, meaning that the other three didn't collect much dust. And another thing, we took the first peep at this book when small animal medicine was prenatal, not to add how thoroughly we found the subject covered, during the embryonic stage of canine medicine. Moreover, being the pilot of the Association's Executive Board, the author will pardon the brevity of this notice. Space saving is his own decree. Besides pointing out that knowledge of canine medicine accumulated since the last edition is fully covered, readers of the JOURNAL need not be reminded of the high place Brumley's book occupies in the literature and the gap it continues to fill in the small animal clinic. No book of the kind is more widely possessed, none more highly praised. The well-known researches of Parasitologist Rebrasier, acknowledged in the author's preface, will be found significant.—[*Text Book on Diseases of Small Domestic Animals. By O. V. Brumley, D.V.M., Dean, College of Veterinary Medicine, The Ohio State University. 422 pages. Cloth. Lea & Febiger, Philadelphia. 1943. Price $5.00.*]

Diseases of the Genital Organs of Domestic Animals

Few have mustered the courage to actually review this book, not feeling competent to do so intelligently, since it represents a long lifetime of specialization in a difficult subject, guarded by vast experience and ability to write. The author's flair and his knowledge of the subject are taken for granted, and inasmuch as our readers are, or should be, familiar with content and scope, no gazetteer of its 39 chapters seems necessary. The impressive thing about this book is not so much the fidelity to detail as the original approach to the subjects treated—personal points of view which one may seek to challenge in vain. The book is too clinical to anywhere implicate the blessings of genetics.

One can agree with the author that there is some hocus pocus to remove from artificial insemination—some doubt about the coming generations of the artificially bred, and after all, is it more economical than the natural way in the long run? In some situations, artificial breeding is impracticable.

As to calfhood vaccination, quoting, "It is not notably more so [effective] than the carbolic acid cure of Brauer, the methylene blue remedy of Rich, or the horse dung panacea of Rindl," and is yet too young to determine the longevity of the vaccinated. Summarizing the whole subject of Bang's disease, the author still entertains the hypothesis that the bacteria involved are but secondary agents "to needless transgression of the established laws of physiological reproduction."

All in all, this is a book that has won a high place in the veterinary literature of the world and yet, one cannot dig into its context without wondering what the contemporary experts are saying.—[*The Diseases of the Genial Organs of Domestic Animals, Third Edition. By W. L. Williams, Professor Emeritus, Cornell University. Cloth 641 pages. 196 figures. Published by the author.*]

The Los Angeles County Annual Report

The annual report of the Los Angeles County Live Stock Department is always a welcome piece of veterinary literature because it describes without omission the veterinary service of a large metropolitan and agricultural district, where the highest standards of animal-disease control are instituted and enforced. The report for the fiscal year, 1942-1943, is a bound mimeographed booklet of 55 pages, conveniently indexed, covering most of the main livestock problems and the methods pursued in solving them. Of more than ordinary interest are the 102,000 milk cows of the county, practically all of which are imported from neighboring states, and the manner in which the health of these is preserved by an on-its-toes group of veterinarians directed by Dr. L. M. Hurt, designated the County Live Stock Inspector.

Besides the orthodoxy of the livestock-disease field, this annual report reveals a continued determination to clarify the unknowns of rabbit pathology through investigation, conducted in concert with the Fish and Wildlife Service. In so far as reflecting public usage of veterinary science in its highest estate, this annual report remains without parallel.—[*Los Angeles County Live Stock Department, Annual Report for 1942–43. Edited by Leslie M. Hurt, D.V.M., B.S. Agr. 55 pages. Mimeograph. Los Angeles, Calif.*]

Diseases of Turkeys

The author brings the knowledge of turkey disease abreast of the hour in a 1943 revision of his leaflet (bulletin) published in 1937. In addition to 24 pages devoted to emphasizing the details of sanitation and hygiene, and a fac-

tual review of dietary diseases pointing out those vitamins definitely needed by turkey raising, each of the main maladies of the domestic Maleagris are described as to cause, symptoms, diagnosis, postmortem lesions and the approved standards of prophylaxis and treatment. The development of turkey raising and the new concepts of its disease problems leave the doctor no choice but that of possessing such up-to-date literature.—[*Diseases of Turkeys, Bulletin 613, by W. R. Hinshaw, College of Agriculture, University of California, Berkeley. 135 pages. Illustrated. Paper. Published by the University.*]

Milks' Fifth Edition

Being generally acknowledged to have achieved unchallenged leadership among American books in that field, the revision of Milks' Pharmacology, Materia Medica and Therapeutics, reveals the unusually striking changes that have come into that branch of veterinary medicine within the short period of three years and the undertaking emphasizes the serious difficulties confronting authors and publishers determined to keep abreast of the times in chemotherapy, for, brief as the interval between the fourth and fifth editions has been, advances of revolutionary character and importance have been outstanding. To follow through with the developments in the knowledge of vitamins, hormones, sulfonamides, the parasiticides, and the wartime succedanea that have forced themselves into the materia medica, is a praiseworthy task closely tied into the war effort—to the increase in the poundage of food these groups of drugs are adding to total production. Beyond the additions signalized in the new revision, the book needs no analysis for our readers. To us, it is the Sollmann of veterinary medicine, conservative, truthful, complete.—[*Veterinary Pharmacology, Materia Medica and Therapeutics. Fifth Edition. By Howard Jay Milks, D.V.M., Professor of Therapeutics and Director of the Small Animal Clinic, New York State Veterinary College, Cornell University, with a chapter on Biological Therapeutics by Adolph Eichhorn, formerly Director of the Animal Disease Station, United States Bureau of Animal Industry. 673 pages. Cloth. Alexander Eger, Chicago. 1943. Price $7.00.*]

Veterinary Posology

The wrong name for an excellent compendium on many subjects, for out of 206 pages, only 16 pages go to posology. The rest covers in this order: Official and veterinary Formulas (16 pages); Poisons and Antidotes (4 pages); Dictionary of Synonyms and Trade Names (22 pages); Tables of Solubilities (5 pages); Requirements of Legislation (4 pages); Tables of Diseases and Suggested Therapeutics (8 pages); Incompatibles (8 pages); Nomenclature of Bacteriology (6 pages); Diseases Caused by Viruses (1 page); List of Parasites (24 pages); Protozoan Diseases and Their Transmitters (2 pages); Table of Incubation of Disease (3 pages); Table on Nutritive Values of Feeds (7 pages); Weights and Measurements of the Organs (2 pages); Thermometry (3 pages); Table of Estrum (3 pages); Table on Pasture Grasses and Hays (2 pages); Tables on Milk, Cheese, etc. (6 pages); Tables of Names of Animals (4 pages); Dentition (10 pages); Abbreviations (7 pages); Weights, Measures, Foreign Names of Diseases, Physical Constants, and others, making up what may be justly pronounced a precious reference book for practitioner, teacher, student, and writer.—[*Banham's Veterinary Posology and other Information. Seventh Edition. By W. J. Ironside, M.P.S., M.R.C.V.S. 206 pages, 6½ x 4 inches. Cloth. Bailliere, Tindall and Cox, 7 and 8 Henrietta Street, Covent Garden E.C.2, London. 1943. 12s, 6d.*]

Diseases of Chickens

"No culling needed" is the impression gained by reading the 152 pages of *Diseases of Poultry* just received from the California Agricultural Experiment Station. The booklet is based on the extensive observation and research of well-known authors working in a region of vast poultry production. The authors divide the material in three classes: (1) transmissible infections, (2) deficiency diseases, and (3) nonspecific ailments, and then proceed to abridge into usable terms the known facts about poultry diseases. Over-confidence in genetics to the exclusion of sanitation, nutrition, and management is not particularly encouraged as a solution of the high mortality in poultry, inasmuch as inherited resistance, like immunity, is specific. A strain bred to resist one disease may not resist another. Controlling disease by genetic factors is cited "as amenable to improvement."

The precise sanitary measures required to control each of the main infections are described in 100 pages, brilliantly illustrated. Here, one acquires without redundance the exact steps to be taken in mastering the common troubles of poultry medicine through housing, yarding, feeding, heating, disinfection, ventilation, diagnosis, vaccination, and medication where needed. Beyond the generalities are directives on the handling of the following infections: pullorum disease, infectious bronchitis (gasping disease) of chicks, pneumoencephalitis, encephalomyelitis, infectious laryngotracheitis, infectious colds, pox, typhoid, cholera, edema of the wattles, colibacillosis,

tuberculosis, neoplastic disease (range paralysis), coccidiosis, and mycosis of the crop.

The deficiency diseases discussed are: vitamin A, vitamin D (rickets), riboflavin, pantothenic acid (vitamin G), porosis (slipped tendon, manganese deficiency).

The nonspecific diseases briefly touched upon are: digestive disorders, peritonitis, ruptured yolk, urinary disorders, and cannibalism. The closing 35 pages deal with ecto- and endoparasites (mites, lice, worms). [*Diseases of Poultry. By J. R. Beach and M. A. Stewart, California Agricultural Experiment Station, University of California. Paper. 152 pages. Illustrated. Bulletin 674, superseding previous editions. November, 1942.*]

Annual Review of Biochemistry

Scientific books come off the press prejudged nowadays. The authors and what they have to say are known in the circle of their prospective readers. Their right to write is a foregone conclusion. Poaching is rare. What sort of a chap's the author and what's the background is all the reviewer has to account for, except when unknown authors (or publishers) come suddenly upon the scene. Few attempt to master the whole of a basic science and he who dares is but a compiler, or a jack of many trades. Scientific books of generalized title are now whole cloth, woven by editors who know the spinners of every thread. The reviewers, therefore, if faithful to their trust, are not so rash as to chase after technical errors and hold them out for applause undeserved. Editing or reviewing scientific books and writing them are not interchangeable arts. *Je sais tout* is out. The giant in one may be a dwarf in the other. So goes the impression a modern book on biochemistry is apt to make on the intruding reviewer. The subject is built of specialized material fetched from the bournes of uncommon knowledge as much as most of it, is inescapable in a medical education.

As the title signalizes, this book is the twelfth annual report of what's what in biological chemistry as seen by editors of Stanford University and the 26 authors chosen to write the text of that many selected subjects. If some of the material takes the casual reader into unusual depths, most of it concerns knowledge routinely employed in medical practice. To name half of them for example:—

Proteolytic enzymes	Chemistry of hormones
Chemistry of proteins	Water-soluble vitamins
Chemistry of amino acids	Fat-soluble vitamins
	Nutrition
Carbohydrate metabolism	Synthetic drugs
	Chemistry of viruses
Fat metabolism	Microchemistry
Mineral nutrition	Electron microscope
Mineral nution of plants	

An extensive bibliography appended to each chapter and the indexes of authors and subjects give a clear insight into the vast scope of this close-to-life science. The book has the characteristic literary excellence of the Stanford publications.—[*Annual Review of Biochemistry, Volume XII. Edited by James Murray Luck and James H. C. Smith, Stanford University. Cloth. 704 pages. American Physiological Society, Stanford University, P.O., Calif. Price $5.00.*]

The Microscope and Its Use

Instead of being reminded of green caps and freshman antics when a book of this title comes along, the veterinarian is reminded of graduate studies and the many uses he makes of magnification in his every day work. Perhaps more so than clinicians in other branches of medicine, the veterinarian without a good microscope has become as rare as a day in June during the last ten years. And, as new diagnostic methods develop, nothing short of a modern, compound microscope entirely answers his purpose, notwithstanding that the simpler types are manifestly utilitarian in many places. From sheer necessity, microscopy is bound to become universal in the practice of veterinary medicine. When, the other day, a general practitioner detected the cause of an unusual period of sterility in a herd of common milk cows by discovering nests of trichomonads in the prepuce of the herd bull, right in the stable, simple microscopy paid a big dividend. But, what has that to do with a book? Simply this. Material and methods are inseparable in medical practice. Knowledge of both rounds out the practical use of medicine, whether the patient is a cow or a child. To know optics, one must know the microscope, as well as the vast field it brings within the range of visibility. A study of this manual will help to develop and to utilize that field. The subject matter is presented in this order: Evolution of the microscope, in which new historical facts are disclosed; the modern microscope, describing its intricate mechanism; illumination, explaining critical, Kohler, dark field, and oblique illumination; the microtome, use and care; stereoscopic microscope and how to use it; metallurgical microscope, polarizing microscope, accessories, common errors made in microscopy; tables of magnification; line drawings, types of lenses, focus and focuses, *et al.*; and a revealing glossary of 12 pages outlining the language of microscopy. [*The Microscope and Its Use. By Frank F. Muñoz, technical microscope consultant, and Dr. Harry A. Charipper, professor of biology, New York University. 324 pages. Cloth. Illustrated. The Chemical Publishing Co., Inc., Brooklyn, N. Y. 1943. Price, $2.90.*]

THE NEWS

AVMA Activities

Some of President Bower's Travels

Dr. Charles W. Bower (center), Topeka, Kans., president of the AVMA, goes on the air from the farm studio at station WLW's "Everybody's Farm" when he visited there on Oct. 29, 1943. Dr. Bower told listeners about the importance of veterinarians as guardians of the nation's animal and poultry health during war and during peace. At the left is Roy Battles, associate farm program director for WLW and at the right is Ed Mason, WLW farm program director.

The veterinary medical associations of Ohio, Indiana, and Kentucky have coöperated with WLW in putting on these programs.

Earl Neal (leather jacket), manager of WLW's Everybody's Farm, shows his healthy thoroughbred Durocks to Dr. Charles W. Bower (second from left).

Dr. Bower spoke, while in Cincinnati, of the nation-wide radio series on livestock and poultry health that the AVMA is planning, to begin the first week in January, 1944. The programs will be sponsored by state veterinary medical associations and broadcast over a leading station in each participating state. Indications to date are that about two-thirds of the state associations, and two provincial associations in Canada, will carry on the series.

On this trip, President Bower also attended the centennial anniversary of the founding of the medical school at Western Reserve University, Cleveland, Ohio, and the meeting of the Southern Veterinary Medical Association at Atlanta. While at the latter place, he addressed an Army medical department group at Fort McPherson, consisting of medical, dental, and veterinary officers, bacteriologists, chemists, and technicians.

This group of veterinarians, discussing animal and poultry health with Dr. Bower before he went on the air, attended the broadcast.

Left to right are Roy Battles; Drs. H. J. Wright, Hamilton, Ohio; C. H. Sater, Hamilton; J. A. Winkler, Newport, Ky., assistant state veterinarian for Kentucky and chairman of the executive committee of the Kentucky association; S. W. Stout, Hamilton, president of the Tri-County Veterinary Association; Dr. Bower; R. G. Kerans, Norwood, Ohio, president of the Southwestern Ohio Veterinary Association; A. G. Madden, Madeira, Ohio; N. H. Myers, Wilmington, Ohio, secretary of the Southwestern Ohio Veterinary Association and director of the Ohio State Association, and Ed Mason.

Special Election in Executive Board District VI

The nominating polls for special election of a member of the Executive Board from District VI (Arizona, California, Canal Zone and Central America, Colorado, Mexico, Nevada, New Mexico and Utah) closed on Oct. 30, 1943. A 6-way tie for fifth place in the nominations necessitated the listing of ten candidates on the ballots instead of the usual five. They are:

R. F. Bourne, Ft. Collins, Colo.
C. U. Duckworth, Sacramento, Calif.
R. M. Gow, Denver, Colo.
L. M. Hurt, Sierra Madre, Calif.
N. J. Miller, Eaton, Colo.
I. E. Newsom, Ft. Collins, Colo.
F. L. Schneider, Albuquerque, N. M.
K. W. Smith, Ft. Collins, Colo.
Jacob Traum, Berkeley, Calif.
L. R. Vawter, Reno, Nev.

The election is to fill the unexpired term ending in 1946, a vacancy having been created by the selection of Dr. James Farquharson, previous incumbent, as president-elect of the AVMA. Ballots were mailed to all members in District VI on November 8 and the polls will close January 8, 1944.

Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

Burkholder, C. E., Kirksville, Mo.

Chastain, Claude B., Rising Star, Texas.

Dole, Joel R., 768 Pleasant St., Worcester, Mass.

Hall, Howard H., Spooner, Wis.

Holtzman, Jacob, Station Hosp., A.A.B., Ft. Douglas, Utah.

Hupp, Lynn D., 1339 Armour, Kansas City, Mo.

Ingram, H. E., c/o Swift & Co., 2300 S. Lamar, Dallas, Texas.

Mathis, Rudy C., State Veterinarian, Atlanta, Ga.

O'Connell, H. J., State Fair Park Adm. Bldg., West Allis, Wis.

Pulling, Fred B. Jr., Millbrook, N. Y.

Rothe, W. E., 146 W. Lincoln Ave., Roselle Park, N. J.

Ryff, J. F., Rimrock Rd., Billings, Mont.

Schneider, H. A., Box 204 Hill Station, Harrisburg, Pa.

Siver, Dougal, 429 Wrightwood Ave., Apt. 1-N, Chicago, Ill.

Stefanski, A. M., 514-16 P. O. Bldg., Jackson, Miss.

Weldner, Morris F., Box 205, Cody, Wyo.

APPLICATIONS

The listing of applicants conforms to the requirements of the administration by-laws—Article X, Section 2.

First Listing

ANDERSON, J. GORDON
1016-9th Ave., West, Calgary, Alberta, Can.
B.V.Sc., Ontario Veterinary College, 1924.
Vouchers: P. R. Talbot and G. G. Pook.

BUTLER, ELLIOTT A.
c/o Station Veterinarian, Fort Benj. Harrison, Ind.
D.V.M., Iowa State College, 1938.
Vouchers: O. C. Schwalm and G. S. Elwood.

COLE, EUGENE W.
South Charleston, Ohio.
D.V.M., Ohio State University, 1938.
Vouchers: F. A. Zimmer and W. F. Guard.

HERSHMAN, H. M.
126 E. Main St., Uniontown, Pa.
V.M.D., University of Pennsylvania, 1937.
Vouchers: G. A. Dick and J. D. Beck.

HOAG, OBY J.
Greene, N. Y.
D.V.M., Cornell University, 1937.
Vouchers: D. W. Baker and H. C. Stephenson.

LEVENE, SYDNEY P.
3380 Portland Rd., Salem, Ore.
D.V.M., Kansas State College, 1936.
Vouchers: F. W. Lange and W. H. Lytle.

TAYLOR, HOWARD C.
3130 W. Slauson Ave., Los Angeles, Calif.
D.V.M., Colorado State College, 1942.
Vouchers: K. W. Smith and J. L. Tyler.

STONER, NORMAN H.
Station Veterinarian, Camp Grant, Ill.
D.V.M., Michigan State College, 1935.
Vouchers: W. J. Angerer and W. F. Riley.

WESNER, MARNIE E.
Walnut, Ill.
D.V.M., Terre Haute Veterinary College, 1912.
Vouchers: L. A. Merillat and J. G. Hardenbergh.

ZOOK, ROY F. Jr.
c/o Station Veterinarian, Camp Grant, Ill.
D.V.M., Iowa State College, 1938.
Vouchers: W. F. Riley and W. J. Angerer.

Second Listing

Cox, Benjamin F., 470 Samford Ave., Auburn Ala.

Kenaston, Glenn H., 3821 Arizona St., San Diego, 4, Calif.

Marcellus, F. N., Ontario Agricultural College, Guelph, Ont., Canada.
Newlin, T. A., 11 Segur St., Dover, N. J.
Reed, W. R., c/o Home Pkg. Co., Terre Haute, Ind.
Walton, R., Veterinary Lab., Dept. of Agriculture, Edmonton, Alberta, Can.

1943 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Colorado State College

STEIN, ARNOLD J., D.V.M.
321 S. Adams, Monte Vista, Colo.
Vouchers: I. E. Newsom and A. G. Wadleigh.

Ontario Veterinary College

HANNA, G. E., B.V.Sc.
Stayner, Ontario, Can.
Vouchers: C. D. McGilvray and F. W. Schofield.

Washington State College

HINDS, JOHN L., D.V.M.
552 6th Ave., Yuma, Ariz.
Vouchers: G. G. Crosbie and E. L. Courtright.
SEGHETTI, LEE, D.V.M.
521 W. Arthur, Bozeman, Mont.
Vouchers: E. E. Wegner and J. E. McCoy.

Second Listing

Alabama Polytechnic Institute

Cottier, George J., D.V.M., Box 542, Auburn, Ala.
Edmiston, H. Michael, D.V.M., 52 S. Washington St., Easton, Md.
Howard, Jack H., D.V.M., Box 267, Leesburg, Va.
Jacobs, Joel H., D.V.M., P. O. Box 133, Auburn, Ala.

Colorado State College

Barber, Sterling E., D.V.M., Norden Labs., Sioux City, Iowa.
Clark, Sterling D., D.V.M., Box 336, Fowler, Colo.
Cullen, W. Clough, D.V.M., 127 Lincoln St., Mankato, Minn.
Eden, Edward L. Jr., D.V.M., 2800 W. Northern Ave., Pueblo, Colo.
English, J. E. Jr., D.V.M., Powell, Wyo.
Hamilton, Paul C., D.V.M., 223 Ramsey St., Stillwater, Okla.
Hasselbalch, Neal I., D.V.M., St. Edward, Neb.
Jobe, Darr, D.V.M., Rt. No. 1, Box 244, Visalia, Calif.
Klaich, Nick, D.V.M., P. O. Box 1434, McGill, Nev.
Koenig, Richard E., D.V.M., 801 N. 6th St., Sterling, Colo.
Laird, William W., D.V.M., 6227 King Ave., Bell, Calif.
McChesney, Arthur C. Jr., D.V.M., 708 Remington, Ft. Collins, Colo.
McChesney, John H., D.V.M., 708 Remington St., Ft. Collins, Colo.
Minnick, Richard F., D.V.M., 612 S. College, Ft. Collins, Colo.
Molello, Joseph, D.V.M., Box 11, Portland, Colo.
Nisley, Bryant, D.V.M., 1622 Avenue D, Gothenburg, Neb.
Osguthorpe, Delbert A., D.V.M., 3659 S. 20th E., Salt Lake City, Utah.
Pike, Tommy L., D.V.M., Rt. No. 2, LaJunta, Colo.
Reid, Donald G., D.V.M., 626 W. Platte Ave., Ft. Morgan, Colo.
Stacy, J. E., D.V.M., Whitehall, Wis.
Tew, Alfred C., D.V.M., 200 E. Laurel St., Ft. Collins, Colo.
White, Robert W., D.V.M., 2525 "O" St., Lincoln, Neb.
Wion, John E., D.V.M., 708 Remington St., Ft. Collins, Colo.
Woods, Richard S., D.V.M., 244 Washington St., Monte Vista, Colo.

Cornell University

Arnaboldi, Joseph P., D.V.M., Box 136, Mt. Sinai, L. I., N. Y.
Bandes, Gerald H., D.V.M., 164 E. 71 St., New York, N. Y.
Berdan, Leonard N., D.V.M., William St., Salem, N. Y.
Boardman, Don A. Jr., D.V.M., 213 W. Liberty St., Rome, N. Y.
Bradley, Dorothy E., D.V.M., 226 East Ave., Lockport, N. Y.
Coye, Elmer N., D.V.M., Naples, N. Y.
Crawford, Everett J., D.V.M., Angelica, N. Y.
Doig, Robert, D.V.M., 42 St. John St., Walton, N. Y.
Dragoo, Paul O., D.V.M., Schenevus, N. Y.
Elmer, Everett K., D.V.M., 25 Howard Ave., Malone, N. Y.
Ferber, Leonard, D.V.M., 33-10 145th St., Flushing, N. Y.
Fish, Richard B., D.V.M., 103 College Blvd., Grenada, Miss.
Gage, Thomas A., D.V.M., 806 E. Seneca St., Ithaca, N. Y.
Gillespie, Richard J., D.V.M., 7502-7 Ave., Brooklyn, N. Y.
Goldberg, Abie, D.V.M., 14 S. Seventh St., Hudson, N. Y.
Goodman, Merrill, D.V.M., Box 263, Livingston Manor, N. Y.
Goss, Allen C., D.V.M., Stamford, N. Y.

Grover, Boynton A., D.V.M., 6 Helen St., Plattsburg, N. Y.
Jastremski, Maurice M., D.V.M., R.D. No. 3, Richfield Springs, N. Y.
Jones, Wallace G., D.V.M., Smithtown Branch, N. Y.
Karmin, Leo R., D.V.M., 390 Eastern Parkway, Brooklyn, N. Y.
Malmberg, Rex A., D.V.M., R.F.D. No. 1, Ashville, N. Y.
Palmer, Hallsey R., D.V.M., Yorktown Heights, N. Y.
Parmelee, Richard H. Jr., D.V.M., 1544 Tolma Ave., Dormont, Pa.
Radziwiller, Saul, D.V.M., 1820 E. 13th St., Brooklyn, N. Y.
Richards, John W. Jr., D.V.M., 812 Hanshaw Rd., Ithaca, N. Y.
Rickard, Charles G., D.V.M., 915 E. State St., Ithaca, N. Y.
Ripps, Jerome H., D.V.M., 147-11 32 Ave., Flushing, N. Y.
Robertson, Colin M., D.V.M., R.D. No. 1, Laurens, N. Y.
Simpson, Charles F., D.V.M., 65 S. Harrison St., East Orange, N. J.
Smith, Edwin B., D.V.M., Delhi Rd., Gainesville, N. Y.
Studdert, Hugh P., D.V.M., 310 College Ave., Ithaca, N. Y.
Tanis, John, D.V.M., Ideal Farms, Augusta, N. J.
Troy, Matthew A., D.V.M., 319 College Ave., Ithaca, N. Y.
Tweddle, J. Richard, D.V.M., Montgomery, N. Y.
Vail, John I., D.V.M., 73 Maple St., Bristol, Conn.
Zepp, Clarence P. Jr., D.V.M., 138 W. 53rd St., New York, N. Y.

Ontario Veterinary College

Soltys, Albert, B.V.Sc., Miami, Man., Can.

Texas A. & M. College

Bailey, Earl G. Jr., D.V.M., Box 148, Dexter, Mo.
Bailey, James W., D.V.M., Orion, Ill.
Baker, Frederick W., D.V.M., Blanchardville, Wis.
Ballard, David C., D.V.M., Haskell, Texas.
Baronti, August C., D.V.M., 109 Fourth St., Eureka, Calif.
Beckley, Dann E., D.V.M., 107 Crescent, San Antonio, Texas.
Benitez, Sergio V., D.V.M., Pepe Torres No. 58, Holguin, Cuba.
Borer, Lee N., D.V.M., 1439 President St., Brooklyn, N. Y.
Cabeen, James L., D.V.M., 3219 Fairview St., Dallas, Texas.
Casey, Watt M., D.V.M., Albany, Texas.
Charlebois, George J., D.V.M., 6213 Miramonte Blvd., Los Angeles, Calif.
Chastain, Claude B., D.V.M., Rising Star, Texas.
Clayton, P. A. Jr., D.V.M., Bailey, Tenn.
Cline, Deane T., D.V.M., Box 312, College Station, Texas.
Crutcher, Marvin L. Jr., D.V.M., 516 W. 3rd St., Sedalia, Mo.
DeLucia, Kenneth, D.V.M., 565 Courtlandt Ave., New York, N. Y.
Detjen, Edward Y., D.V.M., 1511 N. Elwood, Tulsa, Okla.
DeVolin, Tyrrel E., D.V.M., Marfa, Texas.
Dobson, George W., D.V.M., College Grove, Tenn.
Donelson, Seth B., D.V.M., Stanton, Texas.
Dowell, Paul H., D.V.M., Box 424, College Station, Texas.
DuBose, Waymon G., D.V.M., 1739 Convina St., San Antonio, Texas.
Duckenfield, Horace, D.V.M., Box 401, Belmont, Calif.
Elia, Charles V., D.V.M., 1201 West St., Marshall, Texas.
Fahr, Robert E., D.V.M., 302A E. 33rd St., Bryan, Texas.
Gordon, Thomas M. Jr., D.V.M., Breckenridge, Texas.
Gray, Jack Jr., D.V.M., Rt. No. 2, Box 57, Mission, Texas.
Gunn, Floyd L., D.V.M., Marble Falls, Texas.
Harner, George, D.V.M., Newton, Miss.
Hayden, John [illegible], D.V.M., 250 4th Ave. E., Twin Falls, I[illegible]
Hejl, John M., D.V.M., 5021 S. 18th St., Omaha, Neb.
Jenkins, William D., D.V.M., 926 Euclid Ave., Houston, Texas.
Joiner, Early E., D.V.M., South Plains, Texas.
Kelber, William J., D.V.M., 6th and Baker, Ontario, Calif.
Kerby Duron R., D.V.M., Rt. No. 2, Goldthwaite, Texas.
Luries, Wilford J., D.V.M., 240 W. 7th St., Erie, Pa.
Madin, Stewart H., D.V.M., 209 San Gabriel Ave., Azusa, Calif.
Magrane, Harry J. II, D.V.M., 1207 Lincolnway W., Mishawaka, Ind.
Martin, G. A., D.V.M., Dyersburg, Tenn.
Milentz, Arthur R. Jr., D.V.M., Liberty, Texas.
Miller, Rufus H. Jr., D.V.M., 1801 Lancaster St., Big Spring, Texas.
Munson, Alexander H., D.V.M., 1223 Aganier St., San Antonio, Texas.
Patterson, Raymond C., D.V.M., Franklin Grove, Ill.
Phillips, Hugh M., D.V.M., Box 86, Gilmer, Texas.
Roberson, Billy C., D.V.M., Pecos, Texas.
Romane, William M., D.V.M., Box 372, Crosbyton, Texas.
Rouse, Harold D., D.V.M., 1822 Broadway, Beaumont, Texas.
Schofield, Gene C., D.V.M., Viroqua, Wis.
Stallings, Earl P., D.V.M., 2147 Colquitt Ave., Houston, Texas.

Swingley, Robert P., D.V.M., 20 W. Douglas, Freeport, Ill.

Thomas, Julian H., D.V.M., 3808 28th St., Port Arthur, Texas.

Thomas, William K., D.V.M., Box 498, College Station, Texas.

Tower, James H., D.V.M., Dalton, Pa.

Wilcox, Robert B., D.V.M., 637 W. 18th, Houston, Texas.

Young, James B., D.V.M., 1233 Dryades St., New Orleans, La.

Washington State College

Brabrook, R. K., D.V.M., 622 W. First St., Aberdeen, Wash.

U. S. GOVERNMENT

Schoening Heads Animal Disease Station.—In having consolidated the work of the Animal Disease Station at Beltsville, Md., with that of the Pathological Division, Harry W. Schoening

Dr. Harry W. Schoening

becomes chief of the two units, replacing Adolph Eichhor (retired) in the former. The headquarters of the Pathological Division will remain in the Administration Building in Washington, and there will be no change in the former activities. Prominent diseases under investigation are encephalomyelitis, brucellosis, equine infectious anemia, anaplasmosis, swine erysipelas, hog cholera, mastitis, and poultry diseases.

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Graduate Correspondence School.—Effective Sept. 27, 1943, the USDA announced the opening of a correspondence course for department employees. This is the first attempt to extend graduate studies to field men. Enrollment is by request to Graduate School, USDA, Washington, D. C.

Serum Producers' Indictment.—The United States District Court of Northern Illinois, wherein the Associated Serum Producers were indicted for alleged violation of the federal antitrust laws, has directed the attorney general to file a bill of particulars in answer to the defendants' demurrer and motion to quash.

AMONG THE STATES

Australia

Says J. C. J. Maunder, V.V.Sc., in an article entitled, "The War Effort of the Veterinary Profession" *(Australian Vet. J.*, Aug. 1943): "Of meat and dairy inspection, either of the actual foodstuffs or of their sources of supply, we apparently know nothing so far as the army is concerned; certainly we have not been asked for anything. As an example of what can be done in this sphere, we have only to look at the thousands of head of cattle that have been tuberculin-tested (by civilian veterinarians) to supply milk from healthy cows. This would never have been done had it not been for the efforts of the U. S. veterinarians with the units concerned, and a service of benefit to the troops, the dairy farmers and the country as a whole would not have been performed."

California

Incidence of Bovine Tuberculosis in the U. S. A.—Speaking solely of adult milk cows, the incidence of tuberculosis is but 0.045 per cent. Were all American cattle, which are much less likely to be tuberculous, included in arriving at this figure, the percentage would be somewhat lower. To get this quotient, all one has to do is to consult the annual report of the Los Angeles County Live Stock Department compiled from the annual report of Live Stock Inspector Leslie M. Hurt for the fiscal year 1942-1943. Local affair? Oh, o. During the year, Los Angeles County received and tuberculin-tested 14,400 cows from 13 states along with 101,006 residential cows. The incidence of positive reaction was the figure given above. Although most of the 14,400 importation came from the Rocky Mountain region and points west, there were also shipments from as far east as Wisconsin and Illinois. Inasmuch as Los Angeles County safeguards its cattle by a veterinary service superadded to that of the federal government and states, its reports are a good criterion, if not for the whole country, at least for a large portion of its geography.

Canada

A nation of 11,500,000, with an army of 435,000, an air force of 200,000, a navy of 55,000, 22,000 women in uniform, the production of a

ship every two days, and fighting men in Britain, Newfoundland, Laborador, Iceland, North Africa, Italy, and Alaska—that's valiant Canada in 1943. What a neighbor!

* * *

Although not a sheep-raising country, the ovine population of Canada is over 3,000,000. Of cattle there are 9,000,000, hogs 8,000,000, chicks 68,000,000, and turkeys 4,500,000. Disease of livestock is even more the concern of the business man than the farmer.—*T. W. M. Cameron in Canadian Journal of Comparative Medicine.*

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Personal.—Jos. E. Bennett, 2930 Cambia Street, Vancouver, was chosen secretary-treasurer of the British Columbia Veterinary Medical Association, vice W. Graham Gillam, longtime occupant of that office.

Connecticut

Better care of hogs at birth and vaccination against cholera can produce millions of pounds of additional pork, according to the American Veterinary Medical Association.—*Middleton Press.* (Oct. 21, 1943.)

Delaware

State Association.—Delaware veterinarians met at the University of Delaware on Oct. 22, 1943, for a round table discussion of the new State Mastitis Control Program.

J. C. Kakavas, with the aid of lantern slides, discussed the bacteriology of mastitis.

(Mr.) **E. S. Biddle** gave a demonstration of the several laboratory diagnostic tests.

C. C. Palmer discussed the pathology and therapeutics of mastitis with the aid of lantern slides.

V. C. Lancaster, who is in direct charge of the control program for the state, explained the diagnostic service, the method of collecting milk samples and the rôle which the veterinarian may play in the program. In the discussion which followed many points of interest were brought out.

The practitioners reported that many of their clients are interested in having their herds tested for mastitis and the infected animals treated. It was the judgment of those present that the diagnostic service established by the state working in coöperation with a well-organized program, in which the technical skill of the practicing veterinarians is utilized to the fullest extent, would render a valuable service to the dairy industry of this state.

s/C. C. PALMER, *Resident State Secretary.*

District of Columbia

District Association.—Occasion: fourth quarterly session; place, Mayflower Hotel; time, Nov. 2, 1943; program:

Gerald Dikmans, Zoölogical Division, BAI: "Bovine Genital Trichomoniasis."

A. E. Wight, chief, Tuberculosis Eradication, BAI: "Report on the meeting of the House of Representatives, AVMA War Conference, St. Louis."

H. W. Schoening, chief, Pathological Division, BAI: "Rabies in Washington, Maryland and Virginia," reporting that several hundred bitten persons are now taking the Pasteur treatment and that 500 dogs examined were positive.

Major Green of the Royal Army Veterinary Corps and Remount Service was a guest of the association.

s/W. M. MOHLER, *Secretary.*

Florida

State Association.—The fourteenth annual meeting was held at Jacksonville, Oct. 25-26, 1943. The special features of the technical program were:

Jas. Farquharson, president-elect of the AVMA, Colorado State College: "Surgery and Clinics."

Otto Stader, Ardmore, Pa.: "The Application of the Stader Reduction Splint in Dogs and Man."

B. E. Carlisle, Camilla, Ga.: "I Do This in My Practice."

P. C. McLain, High Point, N. C.: "Practice Points."

The officers elected were: V. L. Bruns, Williston, *president;* J. H. Yarborough, Miami, *vice-president;* and J. V. Knapp, *secretary-treasurer.*

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"Rabies! Rabies! Rabies!" is the headline of the October issue of *Jacksonville Health Digest,* a de luxe monthly on local public health work.

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Dr. D. A. Sanders, veterinarian of the Florida Agricultural Experiment Station, is on a tour of duty in the Bahama Islands under a leave of absence granted at the request of the Bahaman government. His mission is the investigation of diseases among livestock on the Islands and advising methods of their control. JOURNAL readers are familiar with Dr. Sander's flair for original research and with his many useful contributions to American veterinary literature.

Illinois

W. F. Straub, president and founder of the W. F. Straub Company, well-known Chicago

biological products and pharmaceutical manufacturer, has been appointed director of the food-rationing division of the Office of Price Administration.

Indiana

"Strict sanitation will prevent the infections which cause the death of thousands of new-born pigs and produce millions of pounds of additional pork next year," says the American Veterinary Medical Association.—*Lafayette Journal and Courier.* (Oct. 21, 1943.)

Iowa

Research, conducted at the federal swine breeding laboratory at Ames, promises hybrid pigs that will be the marvel of biological science. The announcement is the result of six years of experimental breeding along inbred lines.

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Eastern Iowa Association.—The following supplements the brief account of the thirtieth annual meeting of the Eastern Iowa Veterinary Association held in Cedar Rapids, October 12-13, 1943, which, in attendance and general interest, seems to stand without parallel. As these columns have declared on frequent occasions, "To get the last word on general practice, go to the Eastern Iowa meeting." The 1943 session was not an exception, *vide*, the following program:

C. C. Franks, chief of the Division of Animal Industry, Iowa Department of Agriculture: "Veterinary Regulatory Problems."

J. A. Barger, Inspector-in-charge, U. S. Bureau of Animal Industry: "Equine Encephalomyelitis in Iowa in 1943."

Cliff D. Carpenter, poultry viability coördinator, U. S. Department of Agriculture: "Poultry Diseases."

R. F. Bourne, professor of physiology, Division of Veterinary Medicine, Colorado State College: "The Use of Sulfonamide Drugs in Veterinary Practice."

H. C. Smith, Allied Laboratories, Sioux City: "Vaccination of Adult Cattle for Bang's Disease (Brucellosis) by the Intradermal Method," and "Eradication of Swine Brucellosis by Blood Testing."

Jas. C. Carey, West Liberty: "Bovine Panel Discussion."

Lester Proctor, Hazelton: "Treatment of Milk Fever."

R. B. Koger, Cresco: "Albuminuria in Dairy Cattle a Factor in the Milk Fever Complex."

Ralph C. Hawk, Clinton: "Observations on the Control and Treatment of Bovine Mastitis."

R. B. Helming, Cresco: "Treatment of Diarrhea in Mature Cattle."

J. H. Kritchell, Keokuk: "Treatment of Some Postpartum Uterine Disorders."

W. L. Andrews, Milton: "Studies in the Use of Phenothiazine in Sheep."

L. A. Merillat, editor, JOURNAL of the American Veterinary Medical Association, Chicago: "The Service of the Veterinary Corps, U. S. Army."

C. E. Juhl, Osage: "Swine Diseases."

J. E. Peterman, U. S. Bureau of Animal Industry, Lincoln, Nebr.: "Swine Erysipelas."

L. P. Doyle, Associate in Veterinary Science, Purdue University: "Swine Enteritis."

F. S. Sharp, Ute: "Methods in Swine Practice."

C. C. Graham, Wellsburg, was elected *secretary* to succeed R. E. Elson, Vinton, who stepped into the presidential chair, vice, C. L. Moles, efficient executive of this outstanding session.

Kentucky

Dr. F. E. Hull, Lexington, chairman of the committee on diseases of sheep, will report at the national war conference of the American Veterinary Medical Association in St. Louis August 25-26.—*Lexington Leader.* (Aug. 18, 1943.)

Maine

State Association.—The following is the technical program of the meeting held at the Riding Arena of Lewistown Fairgrounds Oct. 13, 1943:

L. A. Blakeley, Angel Memorial Hospital, Boston: "Perineal Hernia in Small Animals."

E. E. Russell, Farmington: "Shipping Fever in Horses."

R. E. Ingh, Waterville: "Shipping Fever in Cattle."

L. B. Denton, Dover-Foxcroft: "Quiz on Large Animals."

Ray Larcom, Kittery: "Quiz on Small Animals."

H. N. Eames, Brunswick, **E. J. P. McDonald,** Ellsworth; and **S. G. Fine,** USBAI, Augusta: "Review of Current Outstanding Research."

E. C. Moore, Lewiston, and **P. R. Baird,** Waterville, conducted a large animal clinic.

s/J. F. WITTER, *Secretary-Treasurer.*

Massachusetts

State Association.—Occasion: monthly meeting; place, Hotel Vendome, Boston; date, Oct. 27, 1943; program:

Geo. H. Hopson, The DeLaval Separator Com-

pany: "Development and Interest in Short-Time Milking."

R. H. Bruce, Dedham: "The Neuritis Complex in Dogs."

(Mr.) James DeNormandie, director, and **W. S. Stone,** assistant director, Division of Livestock Disease Control, spoke on the work of the Division.

At the meeting held in Springfield in September, the attendance was 37. **Director DeNormandie** and **Assistant Director W. S. Stone** spoke on coöperation between the practitioner and the Division, and C. Thibault of Wakefield, on summer eczema in dogs.

s/H. W. JAKEMAN, *Secretary.*

New Jersey

"The nation's pets may miss their special tidbits but they'll be healthier pets on reduced rations," the American Veterinary Medical Association reports.—*Bayonne Times.* (Oct. 15, 1943.)

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The elimination of two livestock diseases, mastitis and Bang's disease, would solve the wartime milk and butter shortage, says Dr. M. G. Fincher, chairman of the dairy cattle disease committee of the American Veterinary Medical Association.—*Trenton Times.* (Oct. 15, 1943.)

New York

New York City Association.—Occasion: regular monthly meeting; place, Hotel New Yorker; time, 8:30 p.m., Nov. 3, 1943; officers: B. F. Finkelstein, *president;* C. R. Schroeder, *secretary;* program:

Leo Rene, Ph.D., Lederle Laboratories: "Blood Plasma—Its Preparation and Use." Illustrated by the sound-color film "They Need not Die."

Frank Bloom: "Multiple Mast Cell Tumors." Illustrated. Discussed by **Leonard J. Goss.**

Charles Fletcher: "Allergic Rhinitis in a Dog." Discussed by **Henry Gordon.**

s/C. R. SCHROEDER, *Secretary.*

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The American-Soviet Scientific Congress was held at Hotel New Yorker, New York City, Nov. 6-8, 1943. Advances in Russian military medicine, public health, and biological sciences were among the subjects presented in the section of Science and Technology.

Pennsylvania

M. F. Barnes Retires.—After twenty-seven years of service, the last twenty-five of which were continuous, Dr. Miller F. Barnes retired Oct. 1, 1943, from the Pennsylvania Bureau of Animal Industry where he had been employed in various capacities since 1912. Born and raised on a farm in Mercer County (Pa.), Dr. Barnes received his early education and veterinary training (V.M.D., U.P. '11) in Pennsylvania and, except for two years, 1914-16, devoted his entire professional career to his native state. He was instrumental in shaping the policies for livestock disease control in that state.

In 1918, he entered the Pennsylvania Bureau of Animal Industry, where his work was famous for keen observation and painstaking devotion to detail. His labors on tuberculosis in horses, malignant catarrhal fever of cattle, black locust poisoning in chickens, rabies vaccination, improvements in the making of tuberculin, and development of the "Pennsylvania Plan" of brucellosis control, are outstanding.

In 1923, he was appointed director of the state laboratory where for many years he distinguished himself by the development and improvement of diagnostic and other techniques important to the control of livestock and poultry diseases, designed the buildings in which he worked, and saw the laboratory

Dr. Miller F. Barnes

services grow from some 6,000 specimens per year in 1923 to over a million annually, at the present time.

Always a tireless worker, Dr. Barnes was unselfish with his time and energies outside his regular duties, serving on many committees of the AVMA and of the United States Livestock Sanitary Association and National Research Council. He is the author of numerous scientific articles and reports based upon his personal observation and research.

Among the many honors he received are the citation for distinguished service to the dairy

industry, honorary membership in the Philadelphia Society for the Promotion of Agriculture, and its distinguished service medal for his work on the control of Bang's disease. He is a member of many organizations, including the AVMA (joined 1912), United States Livestock Sanitary Association, American Public Health Association, Society of American Bacteriologists, Pennsylvania State Veterinary Medical Association, and the Capitol City Veterinary Club of Harrisburg; Alpha Psi and Phi Zeta fraternities, and a life member of Cassia Lodge, A. F. & A. M., Ardmore, Pa.

His host of friends join in wishing Miller Barnes a happy and well-earned "vacation."

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Chips, a Shepherd, donated to the army by 9-year-old Gail Wren of Pleasantville, is credited with having cleaned out a nest of 20 Italian machine gunners in the Sicilian campaign.—*Dog World.*

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State Secretary of Agriculture Horst and Executive Secretary J. G. Hardenbergh of the American Veterinary Medical Association addressed the State Veterinary Medical Association, Friday.—*Record Herald, Waynesboro.* (Oct. 21, 1943.)

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More than 80,000 persons are donating blood each week to provide blood plasma to our armed forces, Dr. Eichhorn of Beltsville, Md., told the war conference of the American Veterinary medical Association in St. Louis.—*Pottstown Mercury.* (Oct. 21, 1943.)

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Tennessee

The sixth annual Tennessee Walking Horse Show was held at Shelbyville, Sept. 3-5, 1943. Gaited, harness and horsemanship classes were among the entries. Another feature was a ring for walking mules. These shows are proof that the running walk is an inherited gait.

Texas

The Cattleman, spokesman of the state's livestock industry, recounting the presentation of the Twelfth International Veterinary Congress prize to the inventor of the Stader splint adds: "It seems reasonable to assert that no piece of work in human and veterinary medicine during recent years has been more noteworthy."

Utah

Dr. J. E. Madsen, animal pathologist of the state agricultural college, reports from the committee on horse diseases that veterinary scientists have shown that more than 175,000 cases of horse sleeping sickness occur in some years. In an epidemic of human encephalitis, more than 2,000 cases occurred in five states. The cause was the western type of equine encephalomyelitis.—*Ogden Standard Examiner.* (Oct. 15, 1943.)

West Virginia

Well, if we can't get any news out of West Virginia take this one: E. D. Knight, local director of the AKC, says that the state legislature shies away from dog laws because there are 30,000 organized fox hunters in the state, whereupon Capt. Judy, editor of *Dog World*, asks, "Is there anybody in W. Va. that is not a fox hunter?"

State Board Examinations

Indiana—The Indiana Board of Veterinary Examiners will hold their next regular semiannual examination on Jan. 11, 1944. Address all inquiries to J. L. Axby, Veterinary Examining Board, 209 State House, Indianapolis, Ind.

New Jersey—The New Jersey State Board of Veterinary Medical Examiners will hold their next examination at the State House, Trenton, N. J., Jan. 7-8, 1944, at 9 a. m. For further particulars, address: J. A. S. Millar, P. O. Box 318, Deal, N. J.

COMING MEETINGS

United States Livestock Sanitary Association. LaSalle Hotel, Chicago, Ill., Dec. 1-2-3, 1943. R. A. Hendershott, Trenton, N. J., secretary-treasurer.

Arizona Veterinary Medical Association. Westward Ho Hotel, Phoenix, Ariz., Dec. 7, 1943. Vego Mikkelson, 105 Capitol Bldg., Phoenix, Ariz., secretary-treasurer.

Nebraska State Veterinary Medical Association. Lincoln, Neb., Dec. 15-16, 1943. John D. Sprague, David City, Neb., secretary.

Kansas Veterinary Medical Association. Hotel Allis, Wichita, Kan., Dec. 29-30, 1943. C. W. Bower, 3119 Stafford St., Topeka, Kan., secretary.

University of Pennsylvania. Annual Conference for Veterinarians. Jan. 4-5, 1944. G. A. Dick, dean, School of Veterinary Medicine, Philadelphia 4, Pa.

California State Veterinary Medical Association. In connection with the short course, State College, San Luis Obispo, Calif., Jan. 4-5-6, 1944. S. T. Michael, 2500 Sixteenth St., San Francisco, Calif., secretary.

Cornell University. Annual Conference for Veterinarians. Ithaca, N. Y., Jan. 5-7, 1944. W. A. Hagan, dean, Veterinary College, Ithaca, N. Y.

Ohio State Veterinary Medical Association. Deshler-Wallick Hotel, Columbus, Ohio, Jan. 5-6, 1944. R. E. Rebrassier, The Ohio State University, Columbus, Ohio, secretary.

Wisconsin Veterinary Medical Association. Hotel Retlaw, Fond du Lac, Wis., Jan. 6-7, 1944. B. A. Beach, Genetics Building, University of Wisconsin, Madison, Wis., secretary.

Tennessee Veterinary Medical Association. Nöel Hotel, Nashville, Tenn., Jan. 10, 1944. A. C. Topmiller, 530 W. Main St., Murfreesboro, Tenn., secretary.

Oklahoma Veterinary Medical Association. Twenty-ninth annual meeting, Oklahoma City, Okla., Jan. 10-11, 1944. F. Y. S. Moore, McAlester, Okla., secretary-treasurer.

Minnesota State Veterinary Medical Society. Hotel Nicollet, Minneapolis, Minn., Jan. 10-12, 1944. H. C. H. Kernkamp, University Farm, St. Paul 8, Minn., secretary.

Rhode Island Veterinary Medical Association. Narragansett Hotel, Providence, R. I., Jan. 11, 1944. J. S. Barber, 560 Pleasant St., Pawtucket, R. I., secretary.

Indiana State Veterinary Medical Association. Severin Hotel, Indianapolis, Ind., Jan. 11-12-13, 1944. C. C. Dobson, New Augusta, Ind., secretary-treasurer.

Ontario Veterinary Medical Association. Annual meeting, Royal York Hotel, Toronto, Ontario, Jan. 27-28, 1944. F. H. S. Lowrey, 2555 Bloor St., W., Toronto, Ont., secretary.

Michigan State College. Post-Graduate Conference for Veterinarians. East Lansing, Mich., Jan. 26-27, 1944. Ward Giltner, dean, Division of Veterinary Science, East Lansing, Mich.

Illinois State Veterinary Medical Association. Annual meeting, Leland Hotel, Springfield, Jan. 20-21, 1944. C. C. Hastings, Secretary-treasurer.

Virginia State Veterinary Medical Association. John Marshall Hotel, Richmond, Va., Jan. 12-13, 1944. E. P. Johnson, Box 593, Blacksburg, Va., secretary.

Iowa Veterinary Medical Association. Jan. 25-27, 1944. C. C. Franks, 720 Grand Ave., Des Moines, Iowa, secretary.

New Jersey Veterinary Medical Association. Hotel Sheraton, Newark, N. J., Feb. 3-4, 1944. J. R. Porteus, Box 938, Trenton, N. J., secretary.

BIRTHS

To Dr. (Colo., '40) and Mrs. M. F. Calhoun, Titonka, Iowa, a son, Stephan, Aug. 12, 1943.

To Lt. (CORN, '39) and Mrs. M. Erdheim, Ass't Port Veterinarian, N.O.P.E., New Orleans 12, La., a son, Allen, Aug. 31, 1943.

To Dr. (M.S.C., '39) and Mrs. H. P. Johnson, 1877 Cedar St., Holt, Mich., a son, Brian Jon, Sept. 1, 1943.

To Lt. (M.S.C., '43) and Mrs. Duane Kosht, 714 Chittenden Dr., East Lansing, Mich., a son, David Lynn, Sept. 6, 1943.

To Dr. (Wash., '29) and Mrs. E. R. Braun, 1313 N. Irwin St., Hanford, Calif., a daughter, Susan Ellen, Sept. 19, 1943.

To Dr. (Colo., '42) and Mrs. Leonard S. Peavy, 800 S. Colorado Blvd., Denver 7, Colo., a son, Leland Stewart, Oct. 19, 1943.

MARRIAGES

Dr. Robert S. Johnson (M.S.C., '40) Yale, Mich., to Miss Anna C. Holsey, June 12, 1943.

Dr. William M. Foster (Colo., '42), 402 McKinley St., Waupun, Wis., to Miss Melinda Vandeberg, Sept. 24, 1943.

Dr. Frederick Hauser (M.S.C., '42), DeWitt, Mich., to Miss A. Jean Lietzke, Oct. 15, 1943.

DEATHS

George T. Casper (McK. V. C. '05), 65 years old, died Oct. 7, 1943, at Klamath Falls, Ore. He was born in Cypress, Ill., in 1878. For approximately twenty years he was a member of the United States Bureau of Animal Industry, with headquarters at Olympia, Wash. Klamath Falls was his official station. Dr. Casper was a member of the National Association of Federal Veterinarians and the AVMA.

Joseph F. Claire (G.R. V. C. '10), 64 years old, Tracy, Calif., died Oct. 21, 1943 at Sacramento, Calif. He was born March 14, 1879 at Stowe, Vt. Dr. Claire had practiced for the last thirteen years at Tracy, having served several years in the livestock department of Los Angeles county. He joined the AVMA in 1929.

Mrs. Effie McKim Hurt, Sierra Madre, Calif., died at Cedars of Lebanon Hospital, Los Angeles, Sept. 23, 1943. The deceased was the wife of Dr. L. M. Hurt, prominent figure of the American veterinary profession, member of the Executive Board of the AVMA, and head of the livestock sanitary service of Los Angeles County, the mother of Capt. Robert Hurt and Major Harry Hurt, United States Army, Donald and Thomas Hurt of Los Angeles, and of Mrs. Mary Millican of Socorro, N. M. The profound sympathies extended to the bereaved family from coast to coast could be but feeble tributes to the memory of a wonderful mother.

Frank B. Jackson (Cin. V. C. '06), Camden, Ohio, died July 28, 1943. Dr. Jackson had been a member of the AVMA since 1909.

Shirley Nebeker (K. C. V. C., '11), 55 years old, died Aug. 6, 1943, at Ogden, Utah. He was born in Salt Lake City. Since 1911, Dr. Nebeker had practiced in Laketown, Utah. He was past president of the Utah Veterinary Medical Association, and a member of the AVMA.

THE VETERINARY PROFESSION AND THE WAR

Mud and Snow Tires for "Farm Veterinarians"

Recent information from the OPA may serve to answer questions which will arise when veterinarians attempt to obtain the special tire equipment for which local rationing boards are permitted to issue purchase authorization certificates. Present tire regulations of the OPA permit a local rationing board to issue certificates for two mud and snow tires to a "farm veterinarian" in addition to the five regular-tread tires which he may already have on the car used for rendering professional services at "agricultural establishments". However, several restrictions and limitations will, in many instances, prevent the boards from issuing such certificates.

1) The board will not issue a certificate unless convinced the veterinarian must "answer emergency calls requiring him to operate at high rates of speed."*

2) A rationing board cannot issue certificates in excess of its quota. Because of shortage of new passenger tires at this time, the quotas of all local boards are too small to take care of all eligible applicants.

3) When such a situation exists, it is the responsibility of the board to use its quota for applicants who have the greatest need and most essential work to perform. For example, a board would hesitate to use an inadequate quota to provide two extra tires to someone who is already able to operate his car with existing tire equipment if this would result in denial of tire certificates to other essential car owners who do not have enough tires to continue operation.

4) Production of all tires, either of regular or special treads, is controlled by WPB. The present critical shortage of materials, equipment, and manpower has greatly restricted the manufacture of all tires. Consequently, present stocks of mud and snow tires are very limited.

5) In view of the foregoing, it will not always be possible for "farm veterinarians" to obtain certificates to purchase special tires; in other cases, it will not be possible to find the tires even if certificates are issued. The OPA suggests that, if extra traction is needed on the cars of professional men, every effort should first be made to obtain tire chains.

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*The reason for limiting extra tire equipment to cars which must travel at high speeds is not entirely clear, since providing mud and snow tires to veterinarians, for example, would seem to be for the prime purpose of enabling them to make calls, regardless of speed, which they could not otherwise complete because of bad travel conditions on country roads and farm lanes at certain seasons of the year. The official explanation from the Regional Rationing Executive of the Chicago office of OPA states:

> "This is for the reason that mud and snow type tires are not entirely satisfactory for large amounts of high speed driving, especially in warm weather. However, they are considered satisfactory for occasional high speed driving, and are very satisfactory at speeds under 35 miles per hour. Therefore, if a veterinarian finds himself doing a large amount of high-speed driving, he is eligible to own five regular type tires, plus two mud and snow type."

Originally, OPA regulations provided that two of the five tires owned by a "farm veterinarian" for his car used in making professional calls might be of the gripper type (if he could get them) but that extra tires of this type would not be authorized. The veterinarian was expected to use such tires the year round even though they are not satisfactory, for obvious reasons, at certain seasons on hard surfaced roads, especially in hot weather, nor at speeds beyond 35 miles per hour.

The facts of the situation indicate that very few veterinarians will be able to obtain mud and snow type tires because of their scarcity and the likelihood that few if any will be manufactured for some time.—Editor.

Information for State Veterinary Chairmen

The following item appeared in "Procurement and Assignment News" of the War Manpower Commission for Oct. 29, 1943, mailed to all state chairmen:

"Lists of men who have entered the armed forces as well as those who have declined commissions, who have been physically disqualied, or who have been discharged or separated from the services are forwarded regularly to all state chairmen from the Chicago Consultant's Office. If you are not receiving these lists, please

advise Lt. Col. Harold C. Lueth, 545 North Dearborn St., Chicago 10, Ill."

As a result of this item, Lt. Col. Lueth has received letters from several state veterinary chairmen requesting names of veterinarians from their respective states who have been so listed.

In the case of veterinary personnel, these lists have been supplied only to the AVMA central office in Chicago. This service, started in April, 1943, was undertaken originally for medical personnel as a result of a recommendation of the Committee on Allocation of Medical Personnel of the P and A Service. It was later extended to dental and veterinary personnel.

Due to the fact that the lists supplied the AVMA office usually contain only the names of the veterinarians concerned, but not the states from which they come, it has not been feasible to pass the information on to state veterinary chairmen. By the time the veterinary lists are received from the Consultant Office, the AVMA card records frequently show changes of address which make it difficult to determine the state to which a given name should be credited.

If any veterinary chairmen have been unable to maintain complete records of veterinarians from their state who have changed their service status, the AVMA office will, on request, endeavor to supply them with such information as it is received in the central office. Address inquiries to 600 So. Michigan Ave., Chicago 5, Ill., and *not* to Lt. Col. Leuth's office.

Wartime Meetings

Graduate studies by means of medical meetings which are being held under the auspices of the American Medical Association are not frowned upon by the Office of War Transportation. Keeping step with the advances in malaria, tuberculosis, syphilis, digestive disorders, nutritional deficiences, and wounds is as much a wartime need as improvements in U-boats and airplanes. In this respect, veterinary meetings are no exception. Studies of the animal-disease problems cannot be safely postponed until after the war. The War Conference at St. Louis was not a playboy convention. It was a step toward victory —a contribution to the strength of the fighting forces.

The holding of local veterinary meetings should be encouraged. They put no strain of consequence on transportation and pay off in knowledge applied to the food-production program. War is no time for mental hibernation.

Farming in the Army

Officers and enlisted personnel of the Veterinary Corps, World War I, may not all have forgotten the 75-acre potato and vegetable farm they conducted in the shadow of the big guns in the Meuse Valley just north of the veterinary hospital at Neufchateau, Vosges, in coöperation with a base medical hospital. The veterinary hospital furnished the implements (thanks to the Red Cross), the horses, and the fertilizer, of which the hospital's equine inmates supplied an abundance. The farmers were convalescent soldiers of the human hospital. This fling at farming in faraway places is being duplicated in North Africa and in the Middle East at the present time. A 100-acre farm in Palestine is raising farm crops and livestock, and the picture reproduced herewith shows that at least one in North Africa is in the hog-raising business, if not on the Iowa scale, in the way customary in Ohio and parts east.

—*Signal Corps*

Soldiers of the Army Service Command in North Africa looking over their pork crop material.

Thanks to the War Bonds and Stamps you're buying, we're fighting a global war on the pay-as-you-go basis.

EXPOSED TO HOG CHOLERA

this Illinois veterinarian reports*

"...NO LOSSES IN THE B-T-V HERD"

"... For the past three years B-T-V has been used with good results. In fact during a shortage of vaccine the owner of this herd (1500 hogs) refused to let me use ... (other methods) ... and was willing to wait until I could get more B-T-V.

"A few months ago this herd was under definite exposure to hog cholera from a neighbor's herd, that was affected with that disease to the extent of a loss of 60. There were no losses in the B-T-V herd. This owner wants nothing but B-T-V from now on.

"All of the hogs on this farm are marketed at about 350 lbs. of weight and all of the market hogs received one dose of B-T-V."

**Name on request*

Advantages of

CUTTER B-T-V

No post-vaccination reactions ... no loss of condition or life due to vaccination.

No living virus used.

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A larger percentage of hogs will reach market ... and at an earlier age.

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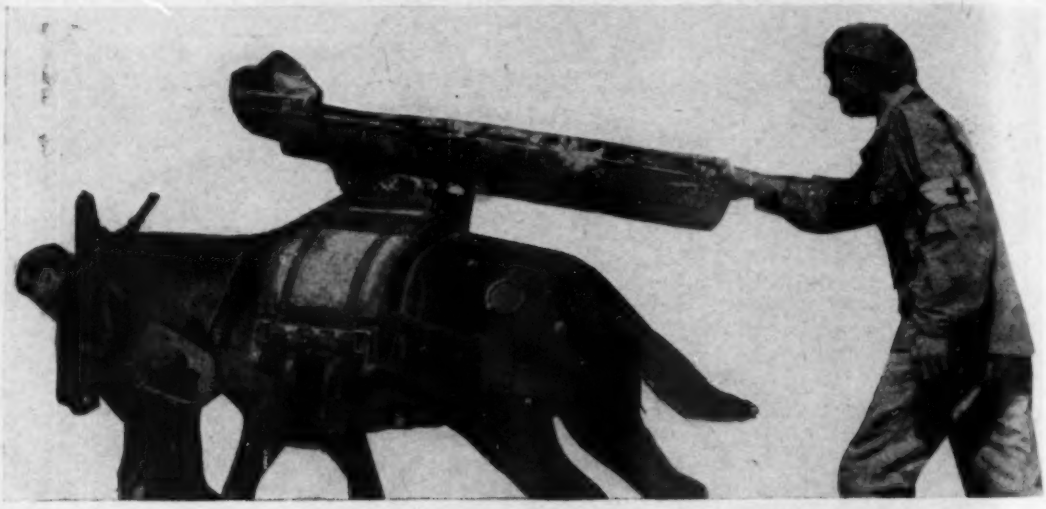

—U. S. Signal Corp

"Army Mules Carry Wounded in New Guinea" was among the recent releases of the U. S. Army Signal Corps, operating on the South Pacific front. You've heard of airplanes evacuating the wounded to the base hospitals, but not of the mules that bring them from the jungles to the airfield. As long as there are wars, there will be army mules.

November Eleventh Nineteen Forty-Three

Jubilee forsooth! The silver anniversary of the truce we celebrated in November as a national holiday but marks the postponement of the march to Berlin at the command of politicians who signed what virtually amounted to the cause of the war now raging all over the world. In twenty-five years we've learned that "The War to End all Wars" was a dud. So, we stop on Armistice Day to pay homage to the dead, to the Unknown Soldier, not to celebrate a glorious event of mundane history.

Except that the celebration of this memorable day may be considered a salvo fired in honor of a futile effort to command peace on earth, the Armistice typifies much to regret and nothing to celebrate. Stopping the hostilities of one great upheaval finds the world speculating on the coming of the next—the remission of the greatest catastrophe of all history, the world's crowning folly, World War II, vile, violent, cruel, atrocious, tragic beyond human comprehension.

Many a veterinarian of 1918, deployed over the ghastly terrain skirting the Argonne Forest, will not soon forget November 11 of twenty-five years ago, its shell-torn hills, shredded woods, wooden crosses and unburied dead, silent proof of man's inhumanity, of the impotence of science, education, and religion, as of 1918.

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Herds are Resistant to Bang's Disease

It has become generally recognized that under war conditions practical control of Bang's disease lies not in the slaughter of infected animals, but in the vaccination of today's calves so that tomorrow's herds will be resistant to infection.

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Extensive work by Haring and others has shown that vaccine prepared from smooth colonies has higher immunizing value than rough colony vaccine. Lockhart Brucella Abortus Vaccine has been prepared for years by methods which eliminate most rough colonies. This insures high antigonic value, and accounts for the superior results obtained from its use.

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U. S. D. A. Photograph by Fu

Undebatable evidence that calfhood vaccination is the keystone to successful control of bovine brucellosis is reflected by production of 14,153,037 cc. of Strain 19 Brucella Abortus Vaccine in federally licensed laboratories during the fiscal year ending June 30, 1943, according to *Service and Regulatory Announcements* of the U. S. Bureau of Animal Industry, August, 1943.

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And, in keeping with sound principles of disease control, sale of this vaccine is confined to properly qualified veterinarians.

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